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A HISTORY

OF

EPIDEMICS IN BRITAIN

from A.D. 664 to the Extinction of Plague

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BY

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V. 1 Pt. 2

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The epidemic of 1578 at Norwich was relatively a far more serious one than that of the capital, and was traced to the visit of the queen: "the trains of her Majesty's carriage, being many of them infected, left the plague behind, which afterwards increased so and continued as it raged above one and three-quarter years after." From August 20, 1578, to February 19, 1579, the deaths were 4817, of which 2335 were of English and 2482 of "alyan strangers," ten aldermen being among the victims[1]. At Yarmouth, in 1579, two thousand are said to have died of the plague between May-day and Michaelmas[2]. Colchester had plague from December, 1578 to August, 1579[3]. It was at Ipswich and at Plymouth in 1579; the epidemic at the latter must have been severe, if the estimate of 600 deaths, given in the annals of the town, is to be trusted[4]. It was again at Stamford in 1580, as appears from an order of the corporation, September 7, prohibiting people from leaving the town[5]. Other centres of plague in 1580 were at Rye, which was cut off from intercourse with London[6], at Leicester, where an assessment for the visited was appointed by the common hall of the citizens[7], at Gloucester, from Easter to Michaelmas, and at Hereford and Wellington, the musters in October having been hindered by "the great infection of the plague[8]."

On February 4, 1582, six houses were shut up at Dover, and on September 12 there was plague in Windsor and Eton[9]. In the parish register of Cranbrooke (Kent), 18 burials are specially marked (as from plague) in 1581, 41 in 1582, and 22 in 1583[10]. It was much dispersed in the Isle of Sheppey, the year after (1584) from Michaelmas into the winter.

Although the years from the spring of 1583 to the autumn of 1592 appear to have been unmarked by plague in London, they witnessed a good many epidemics along the east coast,

[1] Blomefield, vol. III. ("Norwich," under the date).
[2] *Ibid.* "Yarmouth." [3] Morant's *Hist. of Essex*, I. 50.
[4] *Hist. MSS. Commission*, IX. 277 b.
[5] *Notes and Queries*, 6th series, II. 524.
[6] *Cal. State Papers.* [7] Nichols, *Hist. of Leicestershire.*
[8] *Cal. S. P.*
[9] *Cal. State Papers.* Eliz. 1581–90 (Lemon), pp. 45, 70.
[10] Graunt's *Reflections on Bills of Mortality.* 3rd ed., Lond. 1665, p. 135.

In 1589 the plague entered Newcastle and raged severely; of 340 deaths in the whole year in St John's parish, 103 occurred in September; the total mortality of the epidemic to the 1st January, 1590, was 1727. Durham also had a visitation in 1589, plague-huts having been erected on Elvet Moor. Those were years of scarcity, the year 1586 having been one of famine-prices.

The great event of the time was the defeat of the Spanish Armada off the French coast from Calais to Gravelines in the last days of July, 1588. A southerly gale sprang up, which drove the magnificent Spanish fleet past the Thames as far as the Orkneys. It was perhaps well for England that the winds parted the two fleets. The English ships, which had come to anchor in Margate Roads to guard the mouth of the Thames, were in two or three weeks utterly crippled by sickness. The disease must have been a very rapid and deadly infection. Lord Admiral Howard writes to the queen: "those that come in fresh are soonest infected; they sicken one day and die the next." In a previous letter to Burghley he writes: "It is a most pitiful sight to see the men die in the streets of Margate. The Elizabeth Jonas has lost half her crew. Of all the men brought out by Sir Richard Townsend, he has but one left alive." The ships were so weak that they could not venture to come through the Downs from Margate to Dover[1]. It is doubtful whether any part of this sickness and mortality was due to plague, which was not active anywhere in the south of England in that year. Want of food and want of clothes, and in the last resort the hardness and parsimony of Elizabeth, appear to have been the causes. Lord Howard begs for £1000 worth of new clothing, as the men were in great want, and Lord H. Seymour writes that "the men fell sick with cold." Dysentery and typhus were doubtless the infections which had been bred, and became communicable to the fresh drafts of men. But in the Spanish ships, beating about on the high seas and unable to land their men or even to help each other, the sickness grew into true plague, so that the broken remnants of the Armada which reached Corunna were like so many floating pest-houses.

In 1590 and 1591, at a clear interval from the Armada year,

[1] *Cal. S. P.*, Domestic, Eliz. ed. Lemon.

there was much plague in Devonshire. The evidence of its having been in Plymouth comes solely from the corporation accounts; at various times in 1590 and 1591 there were paid, "ten shillings to one that all his stuff was burned for avoiding the sickness," a sum of £5. 19*s.* for houses shut, and a like sum to persons kept in, and sixteen shillings to four men "to watch the townes end for to stay the people of the infected places[1]." The chief epidemics, however, appear to have been at Totness in 1590 and at Tiverton in 1591. The parish register of Totness enters the "first of the plague, Margary, the daughter of Mr Wyche of Dartmouth, June 22, 1590," from which it may be inferred that plague was first at Dartmouth, nine miles down the river, and had ascended to Totness. The following monthly mortalities will show how severe the infection became at Totness in the summer and autumn immediately following[2]:

July 42 (36 of plague, 6 not),
August 81 (80 of plague, 1 not),
September 39 (all of plague),
October 37 (all of plague),
November 25 (24 of plague, 1 not),
December 19 (all of plague),
January, 1591, 10 of plague,
February 1 of plague.

This heavy mortality from plague (246 deaths) was hardly over, when the infection began in March, 1591, at Tiverton. It is said to have been introduced by one William Waulker "a waulking man or traveller." From 1st March, 1591, to 1st March, 1592, the deaths from plague and other causes were 551, or about one in nine of the population[3].

The London Plague of 1592–1593.

The epidemic of plague, which reached its height in the year 1593, began to be felt in London in the autumn of 1592[4], and is

[1] Corporation MSS. of Plymouth. *Hist. MSS. Com.* x. pt. 4, p. 539.

[2] *Notes and Queries*, 6th series, III. 477.

[3] Dunsford's *Historical Memoirs of Tiverton*, p. 38.

[4] *Bill of Mortality for the week ending October* 20, 1603. Broadside in Guildhall Library, with summary, on margin, of the mortalities in 1563 and 1592–93.

said to have caused 2000 deaths before the end of the year. On the 7th September, soldiers from the north on their way to Southampton to embark for foreign parts had to pass round London "to avoid the infection which is much spread abroad" in the city. On the 16th September, the spoil of a great Spanish carrack at Dartmouth could be brought no farther than Greenwich, on account of the contagion in London; no one to go from London to Dartmouth to buy the goods. It was an ominous sign that the infection lasted through the winter; even in mid winter people were leaving London: "the plague is so sore that none of worth stay about these places[1]." On the 6th April, 1593, one William Cecil who had been kept in the Fleet prison by the queen's command, writes that "the place where he lies is a congregation of the unwholesome smells of the town, and the season contagious, so many have died of the plague[2]." From a memorial of 1595, it appears that the neighbourhood of Fleet Ditch had been the most infected part of the whole city and liberties in 1593; "in the last great plague more died about there than in three parishes besides[3]." The epidemic does not appear to have reached its height until summer; on 12th June, a letter states that "the plague is very hot in London and other places of the realm, so that a great mortality is expected this summer." On 3 July the Court "is in out places, and a great part of the household cut off [? dispensed with]." The infection is mentioned in letters down to November, after which date its public interest, at least, appears to have ceased.

Of that London epidemic a weekly record was kept by the Company of Parish Clerks, and published by them, beginning with the weekly bill of 21st December, 1592. The clerk of the Company of Parish Clerks, writing in 1665, had the annual bill

[1] *Cal. State Papers*, 1591–94, p. 312. [2] *Ibid.* p. 340.

[3] *Ibid.* 1595–97, p. 45, May 26, 1595:

"Arguments in proof of the advantages to be derived by the City of London from stopping up the town ditch:—It is the origin of infection, and the only noisome place in the city. In the last great plague, more died about there than in three parishes besides; these fields are the chiefest walks for recreation of the cityzens, and though the ditch were cast every second year, yet the water coming from the kennel and slaughter-houses will be very contagious. It is no material defence for the city, and half the ditch has been stopped these many years."

for 1593 before him, with the plague-deaths and other deaths in each of 109 parishes in alphabetical order, and the christenings as well[1]. For the next two years, 1594 and 1595, he appears to have had before him not only the annual bills but also a complete set of the weekly bills of burials and christenings according to parishes. The same documents were used by Graunt in 1662, and had doubtless been used by John Stow at the time when they were published. The originals are all lost, and only a few totals extracted from them remain on record. To begin with Stow's. The mortality of 17,844 from all causes in 1593 is given as for the City and Liberties only. But there was already a considerable population in the parishes immediately beyond the Bars of the Liberties, which were known as the nine out-parishes, namely those of St Clement Danes, St Giles in the Fields, St James, Clerkenwell, St Katharine at the Tower, St Leonard, Shoreditch, St Martin in the Fields, St Mary, Whitechapel, St Magdalen, Bermondsey, and the Savoy. Besides these there were important parishes still farther out—the Westminster parishes, Lambeth, Newington, Stepney, Hackney and Islington. Of these, Whitechapel, Stepney, Shoreditch, Clerkenwell and some of the western parishes contributed largely to the plague-bills of the epidemics next following, in 1603 and 1625, and it is known from the parish registers of some of them that they contributed to the mortality of 1593. It is probably to these parishes that we should ascribe the difference between the above total of 17,844 (for City and Liberties) and the much larger total of deaths "in and about London," given on the margin of a broadside of 1603: "And in the last visitation from the 20th of December, 1592 to the 23rd of the same month in the year 1593, died in all 25,886—of the plague in and about London 15,003." The addition for the parishes beyond the Bars would thus be 8,042 deaths from all causes, and from plague alone

[1] *London's Remembrancer*, by John Bell, Clerk of the Company of Parish Clerks. London, 1665. He says: "I shall begin with the year 1593, being the first year in which any account of the christenings and burials was kept. I cannot find any record of more antiquity than that of this year in the Company of Parish Clerks Hall." However we can now point to original weekly bills of mortality of 1532 and 1535, to abstracts of weekly plague-burials in 1563–66, to the figures from one weekly bill of a series in 1574, and to abstracts of 1578–83.

4,541—numbers which will seem not inadmissible if they be compared with the figures for the corresponding parishes ten years after, in 1603, Stepney alone having had 2,257 deaths in that plague-year[1].

For the two years next following 1593, Graunt's book of 1662 has preserved the totals of deaths from all causes and from plague in the 97 old parishes within the walls and in 16 parishes of the Liberties and suburbs; he has omitted the christenings, although he had the figures before him. Taking these along with the figures already given for 1593, we get the following table for three consecutive years:

Year	Plague deaths	Other deaths	Total deaths	Christenings
1593	10,662	7,182	17,844	4,021
1594	421	3,508	3,929	—
1595	29	3,478	3,507	—

The proportion of mortality in 1593 that fell to the old area within the walls is known, from Stow's abstract of the figures, to have been about the same as in the space of the Liberties (8598 in the one, 9295 in the other), the deaths from other causes than plague having been rather more in the latter than within the walls. Probably the population in the Liberties was about equal to that in the City proper, the acreage being rather less in the former, but the crowding, doubtless, greater.

The London plague of 1592–93 called forth two known

[1] The total of 25,886 was copied, probably from the broadside of 1603, into an anonymous essay of 1665, called *Reflections on the Bills of Mortality*, the total of plague alone being given as 11,503, evidently by a misprint for 15,003. At the same time a table was given, professing to be of the weekly deaths from all causes, in one column, and from plague in another, from March 13 to December 18, 1593. The column of plague-deaths sums up to 11,110, but the total of 11,503 (which originated in a misprint) is printed at the foot of the column as if that were the summation. The column of deaths from all causes is made to sum up to 25,886, the actual sum being 25,817. But the weekly mortalities in it for those weeks that had little plague are an absurdity for 1593. Whatever the source of this table, it is not genuine for 1593, and was disclaimed by Bell, the clerk of Parish Clerks' Hall, whose essay was written in 1665 to correct that and other errors about former plagues in London.

publications, an anonymous 'Good Councell against the Plague, showing sundry preservatives...to avoyde the infection lately begun in some places of this Cittie' (London, 1592), and the Defensative' of Simon Kellwaye (April, 1593). The dates of these two books show that the alarm had really begun in the end of 1592 and early months of 1593. Kellwaye's book is mostly an echo of foreign writings, the only part of it with direct interest for English practice being the 11th chapter, which "teacheth what orders magistrates and rulers of Citties and townes shoulde cause to be observed." As that chapter sums up the various Elizabethan and other orders, and constitutes a short epitome of sanitary practice, I append it in full:

"Teacheth what orders magistrates and rulers of Citties and townes shoulde cause to be observed.

1. First to command that no stinking doonghills be suffered neere the Cittie.

2. Every evening and morning in the hot weather to cause colde water to be cast in the streetes, especially where the infection is, and every day to cause the streets to be kept cleane and sweete, and clensed from all filthie thinges which lye in the same.

3. And whereas the infection is entred, there to cause fires to be made in the streetes every morning and evening, and if some frankincense, pitch or some other sweet thing be burnt therein it will be much the better.

4. Suffer not any dogs, cattes, or pigs to run about the streets, for they are very dangerous, and apt to carry the infection from place to place.

5. Command that the excrements and filthy things which are voided from the infected places be not cast into the streets, or rivers which are daily in use to make drink or dress meat.

6. That no Chirurgions, or barbers, which use to let blood, do cast the same into the streets or rivers.

7. That no vautes or previes be then emptied, for it is a most dangerous thing.

8. That all Inholders do every day make clean their stables, and cause the doong and filth therein to be carryed away out of the Cittie; for, by suffering it in their houses, as some do use to do, a whole week or fortnight, it doth so putrifie that when it is removed, there is such a stinking savour and unwholesome smell, as is able to infect the whole street where it is.

9. To command that no hemp or flax be kept in water neere the Cittie or towne, for that will cause a very dangerous and infectious savour.

10. To have a speciall care that good and wholesome victuals and corne be solde in the markets, and so to provide that no want thereof be in the Cittie, and for such as have not wherewithall to buy necessary food, that

there to extend their charitable and goodly devotion; for there is nothing that will more encrease the plague than want and scarcity of necessary food.

11. To command that all those which do visit and attend the sick, as also all those which have the sickness on them, and do walk abroad: that they do carry something in their hands, thereby to be known from other people.

Lastly, if the infection be in but few places, there to keep all the people in their houses, all necessaries being brought to them. When the plague is staid, then to cause all the clothes, bedding, and other such things as were used about the sick to be burned, although at the charge of the rest of the inhabitants you buy them all new."

The letters of the time give us a glimpse of this plague in London. On November 3, 1593, Richard Stapes writes to Dr Cæsar, judge of the Admiralty Court, residing at St Albans (doubtless to escape the infection): "My next door neighbour and tenant on Sunday last buried his servant of the plague, and since, on the other side of me, my son-in-law has buried his servant; but I cannot say his was the sickness because the visitors reported that the tokens did not appear on him as on the other[1]."

The epidemic of 1592–93 continued in London at a low level into the year 1594, when 421 persons died of the plague in the City and Liberties. Next year the plague-deaths had fallen to 29. Watford and Hertford, two of the most usual resorts of Londoners in a sickly season, were infected by plague from 1592 to 1594, many of the deaths being of refugees from the capital. At Watford there were 124 burials in the first eight months of 1594, a number much above the average, and many of them marked in the register as plague-deaths[2]. At Hertford plague-deaths appear in the registers of All Saints and St Andrew's parishes in 1592 and 1594. But the greatest mortality at Hertford was in 1596; in St Andrew's parish there were 13 burials in March, the average being one or two in the month; the mortality declined until July, in which month there were buried, among others, between the 12th and 26th, five children of one of the chief burgesses (mayor in 1603)[3]. These may or

[1] *Cal. State Papers.* Addenda. Elizabeth.
[2] Cussan's *Hist. of Hertfordshire.*
[3] Turnor's *Hist. of Hertford*, p. 268.

may not have been plague-deaths, the year 1596 having been unhealthy, as we shall see, with other types of sickness.

Meanwhile, in several provincial towns at a greater distance from the capital than the summer resorts in Hertfordshire, there was plague in the end of 1592, at the same time as in London, and in the following years. At Derby, "the great plague and mortality" began in All Saints parish and in St Alkmund's, at Martinmas, 1592, and ended at Martinmas, 1593, stopping suddenly, "past all expectation of man, what time it was dispersed in every corner of this whole parish, not two houses together being free from it[1]." At Lichfield in 1593 and 1594 upwards of 1100 are said to have died of the plague[2]. At Leicester, on the 21st September, 1593, a contribution was levied for the plague-stricken[3]. At Shrewsbury in 1592–3 there was either plague itself or alarms of it[4]; in the parish of Bishop's Castle there was the enormous mortality of 135 in July and August, 1593, and 182 burials for the year, the average being 25[5]. In the same years the infection was in Canterbury, as appears from entries of payments "to Goodman Ledes watchying at Anthony Howes dore...when his house was first infected with the plague," and, the year after, "to those ii pore folkes which were appointed to carry such to burial as died of the plague; and also to the woman that was appointed to sock them[6]." There are also various references to houses visited and to poor persons relieved. Nottingham and Lincoln are also mentioned as having been notoriously afflicted with plague in 1593[7].

A solitary record of plague comes from Cornwall in 1595. On 3rd May a letter from the justices at Tregony to the Privy Council states that the inhabitants, having been charged by the

[1] Glover's *Hist. of Derby*, p. 613.

[2] Harwood's *Hist. of Lichfield*, p. 304.

[3] Nichols, *Leicestershire* (Town records of Leicester); Kelly, in *Trans. Roy. Hist. Soc.* VI. (1877), p. 391 (at least 20 houses shut up).

[4] Owen and Blakeway.

[5] Parish registers in Townsend's *Leominster*, p. 59.

[6] Corporation MSS. Canterbury, in 9th Report of *Hist. MSS. Commission*, pp. 159 a, 160 a, b. "This plague continued from the end of September to the month of January."

[7] Parish Register of Penrith: "A sore plage was in London, Nottinghome, Derbie and Lincolne in the year 1593" (Jefferson's *Cumberland*, I. 19).

justices at the General Sessions to restrain divers infected houses within the borough, were molested in executing these commands, and had made complaint thereof[1].

All that remains to be said of plague in England until the end of the Tudor period (1603) relates exclusively to the provinces; unless the records are defective, London was clear of plague for nine years following 1592–94, just as it was clear for nine years preceding. The year 1597 was one of great scarcity in more than one region of England. At Bristol wheat is quoted at the incredible figure of twenty shillings the bushel; a civic ordinance was made that every person of ability should keep in his house as many poor persons as his income would allow[2]. But it is from the North of England in 1597 that we have more particular accounts of famine and of plague in its train. Writing in January, 1597, the dean of Durham says[3]:

"Want and waste have crept into Northumberland, Westmoreland and Cumberland; many have come 60 miles from Carlisle to Durham to buy bread, and sometimes for 20 miles there will be no inhabitant. In the bishopric of Durham, 500 ploughs have decayed in a few years, and corn has to be fetched from Newcastle, whereby the plague is spread in the northern counties: tenants cannot pay their rents; then whole families are turned out, and poor boroughs are pestered with four or five families under one roof."

On the 16th of January, 1597, he wrote again: "In Northumberland great villages are depeopled, and there is no way to stop the enemy's attempt; the people are driven to the poor port towns." On the 26th of May, the dean again complains that there is great dearth in Durham; some days 500 horses are at Newcastle for foreign corn, although that town and Gateshead are dangerously infected. On the 17th September, Lord Burghley, minister of State, is informed that the plague increases at Newcastle, so that the Commissioners cannot yet come thither (the Assizes were not held at all on account of plague about Newcastle and Durham): foreign traders were

[1] *Cal. State Papers.* Addenda. Elizabeth.

[2] Syer's *Memorials of Bristol.* The excessive mortality at Leominster (41 burials in September, 1597) may have been an effect of the famine. (Townsend's *History*, p. 59.)

[3] *Cal. State Papers*, Domestic, 1597, § 10, p. 347.

selling corn at a high price, until some members of the town council produced a stock of corn for sale at a shilling a bushel less[1]. There are no figures extant of the plague-mortality at Newcastle in 1597; but at Darlington the deaths up to October 17 were 340; and in Durham, up to October 27, more than 400 in Elvet, 100 in St Nicholas, 200 in St Margaret's, 60 in St Giles's, 60 in St Mary's, North Bailey, and 24 in the gaol. The whole mortality in St Nicholas parish from July 11 to November 27 was 215. Many of the burials were on the moor. The infection broke out again at Darlington and Durham in September, 1598[2].

Coincident with this severe plague on the eastern side, there was an equally disastrous plague in the North Riding of Yorkshire and in Cumberland and Westmoreland. The plague began at Richmond in the autumn of 1597. In August there were 23 deaths, and in September 42 deaths. The epidemic appears to have reached its height in the summer of 1598, the deaths in May having been 93, in June 99, in July 182 and in August 194. These figures indicate a grievous calamity in so small a place as Richmond. The outbreak which began on the 17th August, 1597, was over in December, 1598. The stress of the epidemic is shown by the fact that the churchyard was insufficient for the burials, many of the dead having been buried in the Castle Yard and in Clarke's Green[3]. Of this severe plague in Cumberland and Westmoreland there are few exact particulars. According to an inscription at Penrith Church, "on the north outside of the vestry, in the wall, in rude characters[4]," the deaths in 1598 were:—

At Penrith 2260,
„ Kendal 2500,
„ Richmond 2200,
„ Carlisle 1196.

We are able to measure the accuracy of these round totals by the monthly burials for Richmond given above; the months of July and August, 1598, with 182 and 194 deaths respectively, were the most deadly season; and it is hardly conceivable that

[1] *Cal. State Papers*, Domestic, 1597, p. 501.
[2] Sykes, *Local Records*, p. 82.
[3] Clarkson's *Hist. of Richmond.*
[4] Camden's *Britannia*, p. 175.

there had been as many as 1800 deaths at Richmond in the months when the epidemic was rising to a height and declining therefrom according to its usual curve of intensity.

Again, the parish register of Penrith gives only 583 deaths from the infection, the inscription on the church wall making them 2260. Perhaps the discrepancy is to be explained by including the mortality in the various parishes of which Richmond, Penrith, Kendal and Carlisle were respectively the centres and market-towns. Thus at Kirkoswald there were buried, according to the parish register, 42 of the pestilence in 1597, and no fewer than 583 in 1598[1],—a number which, if correct, means a death-rate comparable to that of the Black Death itself. Again, in the small parish of Edenhall, 42 were buried of the pestilence in 1598[2]. Appleby, also, is known to have had a severe visitation[3], and so had probably many other parishes.

The Tudor period of plague closes with a severe epidemic at Stamford, which began in the end of 1602. On December 2 the corporation resolved to build a cabin for the plague-stricken, and in January following they levied a fourth part of a fifteenth for the relief and maintenance of people visited with the plague This epidemic is said to have carried off nearly 600; the parish registers of St George's and St Michael's contain entries of persons "buried at the cabbin of the White Fryers[4]."

Plague in Scotland, 1495–1603.

The history of plague in Scotland subsequent to the medieval period is of interest chiefly as affording early illustrations of the practice of quarantine. We last saw the disease prevailing in or near Edinburgh in 1475, the island of Inchkeith, in the Firth of Forth, being used as a quarantine station. It was doubtless the possession of convenient islands near the capital—Inch Colm and Inch Garvie were both used for the same purpose afterwards—that led the Scots government to follow the example of Venice and other foreign cities at no long interval of time.

[1] Jefferson's *Cumberland*, I. 273. But these are the same figures as for Penrith.
[2] *Ibid.* I. 391. [3] Parish register of Penrith, in Jefferson, *l.c.*
[4] *Notes and Queries.* 6th series, II. 524.

When we next hear of plague in Scotland it is again in connexion with infected persons on the island of Inchkeith and in the town of Leith, some time between 13th August, 1495, and 4th July, 1496[1].

But these quarantine practices were not confined to the Firth of Forth. On the 17th May, 1498, the town of Aberdeen was warned by proclamation of the bell of certain measures to be taken so as to preserve the town from the pestilence "and strange sickness abefore," the principal precaution being a guard of citizens at each of the four gates during the day, and that the gates be "lockit with lokis and keis" at night. The "strange sickness abefore" is doubtless the other invasion (of syphilis) which the aldermen tried to check by an order of April, 1497; but "the pestilence" in the order of May 1498 must have been the plague itself[2]. Nothing more is heard of it at Aberdeen or elsewhere in Scotland in that year. It appears to have been somewhat general in Scotland in 1499 and 1500. The audit of burgh accounts, mostly held in June, 1499, was postponed to January 1500 in some cases, the bailie of North Berwick explaining that he was prevented by the plague from coming to the Exchequer[3]. An extra allowance is made to the comptroller, Sir Patrick Hume, in March 1500, "for his great labour in collecting fermes in different parts of the kingdom in time of the infection of the plague." At Peebles, hides and woolfells were destroyed during the plague of 1499. There was a renewal of it in 1500, the audit being again delayed until November. The custumar of Aberdeen brings his account of the great customs of that burgh down only to the 3rd July, 1500, "because after that date the accountant, from dread of the plague, did not enter the burgh of Aberdeen[4]."

It is from the same northern city that our information on plague in Scotland comes exclusively for the next forty-five years, not, of course, because its experience was singular, but because its borough records are known[5].

[1] *Exchequer Rolls of Scotland*, x. 594. Edin. 1887.
[2] *Burgh Records of Aberdeen* (Spalding Club), i. 66.
[3] *Exchequer Rolls Scot.*, xi. p. lxviii.
[4] *Ibid.*
[5] *Burgh Records*, pp. 88, 90, 130, 165.

On the 24th April, 1514, various orders were made at Aberdeen against a disease that seems to have been the plague: "for keeping of the town from strange sickness, and specially this contagious pestilence ringand in all parts about this burgh;" and, again, watching the gates (as in 1498) against persons "coming forth of suspect places where this violent and contagious pestilence reigns." Lodges were erected on the Links and Gallow-hill, where the infected or suspected were to remain for forty days. In the following year (1515), sixteen persons were banished from the town for a year and a day for disobeying the orders "anent the plague." On the 27th July, 1530, these orders are renewed "for evading this contagious pestilence reigning in the country." On September 15, 1539 (the year after a plague in the North of England), the plague is called in the municipal orders by a distinctive name: the orders are for avoiding the "contagius infeckand pest callit the boiche, quilk ryngis in diverse partis of the same [realm] now instantly"—the botch being a name given to plague in England also as late as the Elizabethan and Stuart periods.

The years 1545 and 1546 were also plague-years in Scotland. At a council held at Stirling on the 14th June, 1545, the session of the law courts was transferred to Linlithgow "because of the fear of the pest that is lately reigning in the town of Edinburgh[1]." On 10th September, of the same year, the town council of Aberdeen issued orders for evading the pest. On September 18 the plague was in the English army at Warkeshaugh, and it is reported from Newcastle, on 5 October, to be raging on the borders[2]. On March 21, 1546, a house in Aberdeen was shut up for the pest; and there are evidences of its continuance in August, October and December both in that town and "in certain parts of the realm:" on the 11th October the St Nicholas "braid silver" was given for the sustentation of the sick folk of the pest; on the 17th December an Aberdonian named David Spilzelaucht was ordered to be "brint on the left hand with ane het irne" for not showing the bailies "the seiknes of his barne, quilk was seik in the pest[3]." In November, 1548,

[1] *Register of the Privy Council, Scotland*, I. 5.

[2] *Cal. S. P.* Scot. (Thorpe). [3] *Burgh Records*, pp. 222, 231, 244, 246.

the plague is at St Johnstone (Perth), and the Rhinegrave, with troops there, sick of it and like to die[1].

In 1564 the Scots Privy Council ordered quarantine for arrivals from Denmark, in the manner that was practised on merchandise for nearly three centuries after. As these early practices in the Forth are curiously like those that used to be practised in the Medway in the eighteenth century, I shall quote a part of the order of the Scots Privy Council, dated, Edinburgh, September 23, 1564[2]:

"That is to say, becaus maist danger apperis to be amangis the lynt, that the samyn be loissit, and houssit in Sanct Colm's Inche, oppynout, handillet and castin forth to the wynd every uther fair day, quhill the feist of Martimes nixt to cum, be sic visitouris and clengearis as sal be appointit and deput thairto be the Provest, Baillies and Counsall of the burgh of Edinburgh upoun the expensis of the marchantis, ownaris of the saidis gudis. And as concerning the uther gudis, pik, tar, irine, tymmer, that the samyn be clengeit be owir flowing of the sey, at one or twa tydis, the barrellis of asse to be singit with huddir set on fyre, and that the schippis be borit and the sey wattir to haif interes into thame, to the owir loft, and all the partis within to be weschin and clengeit; and siclike that the marinaris and utheris that sall loase and handill the gudis above written, be clengeit and kepit apart be thameselffis for ane tyme, at the discretioun of the saidis visitouris, and licenses to be requirit had and obtenit of the saidis Provest, Baillies and Counsall before they presume to resort opinlie or quietlie amangis oure Soverane Ladeis fre liegis."

The same autumn another foul ship from the Baltic arrived and entered the port of Leith in evasion of quarantine; the master and others are to be apprehended and kept in prison until justice be done upon them for the offence[3].

A severe outbreak of plague in Scotland in the year 1568 gave occasion to the first native treatise upon the disease in the English tongue, the essay by Dr Gilbert Skene, at one time lecturer on medicine at King's College, Aberdeen, but probably removed before 1568 to Edinburgh, where he became physician to James VI.[4] The author says that the plague has "lately

[1] *Cal. S. P.* Scot. 18 Nov. 1548. The Rhinegrave recovered, and came to Edinburgh on the 26th.

[2] *Reg. P. C. Scot.* I. 279–81. [3] *Ibid.* I. 281–2.

[4] *Ane Breve Description of the Pest*, Edin. 1568. Reprinted, for the Bannatyne Club, by James Skene of Rubislaw. Edin. 1840.

entered" the country, and he is led to write upon it in the vulgar tongue for the benefit of those who could not afford to pay for skilled advice, or could not get it on any terms: "Medecineirs are mair studious of their awine helthe nor of the common weilthe." The panic caused by the plague must have been considerable: "Specialie at this time whan ane abhorris ane other in sic maneir as gif nothing of humanitie was restand but all consumit, euery ane abydand diffaent of ane other."

Although Skene's treatise bears numerous traces of the influence of foreign writers on plague, the same being freely acknowledged in the section of prescriptions and regimen, yet the book is much better than a mere compilation. Thus, under the causes of plague, he gives the stock recital of blazing stars, south-winds, corrupt standing waters, and the like; but in mentioning, as others do, dead carrion unburied, he adds that the corrupting human body is most dangerous of all "by similitude of nature."

A season favourable to plague is marked by continual wet in the last part of Spring or beginning of Summer, without wind, and with great heat and turbid musty air.

Anticipating a remark by Thomas Lodge in 1603, and a common experience as regards rats in the recent plagues of various parts of India and China, he points out that the mole (moudewart) and serpent leave the earth, being molested by the vapour contained within the bowels of the same. "If the domesticall fowlis become pestilential, it is ane sign of maist dangerous pest to follow." Among the spots that are most pestilential are those near standing water, or where many dead are buried, the ground being fat and vaporative. Of the duration of infection: "na pest continuallie induris mair than three yeris," according to the principle of "rosten ance can not be made raw againe."

The diagnosis, prognosis, and treatment are given fully and in systematic scholarly order. I give the following long extract on the signs and symptoms of plague, as being the first native account of the disease in this country:

Quhairby corrupt be pest may be knawin.

Thair is mony notis quhilkis schawis ane man infectit be pest. First gif the exteriour partis of the bodie be caulde, and the interiour partis of the bodie vehement hait. As gif the hoill bodie be heavie with oft scharpe punctiounis, stinkand sweiting, tyritnes of bodie, ganting of mowthe, detestable brathe with greit difficultie, at sumtyme vehement fever rather on

nycht nor day. Greit doloure of heid with heavynes, solicitude and sadnes of mynd: greit displesour with sowning. quhairefter followis haistelie deth. As greit appetit and propensnes to sleip albeit on day, raving and walking occupeis the last. Cruell inspectioun of the ene, quhilkis apperis of sindre colouris maist variant, dolour of the stomak, inlak of appetite, vehement doloure of heart, with greit attractioun of Air; intolerable thirst, frequent vomitting of divers colouris or greit appetit by daylie accustum to vomit without effecte: Bitternes of mowth and toung with blaiknit colour thairof and greit drouth: frequent puls small and profund, quhais urine for the maist part is turbide thik and stinkand, or first waterie, colourit thairefter of bilious colour, last confusit and turbide, or at the beginning is zallow inclyning to greine (callit citrine collour) and confusit, thairefter becummis reid without contentis. Albeit sum of thir properteis may be sene in haile mennis water, quhairby mony are deceavit abydand Helth of the patient, quhan sic water is maist manifest sing of deth, because the haill venome and cause conjunit thar with, leavand the naturall partis occupeis the hart and nobillest interioure partis of the body. Last of all and maiste certane, gif with constant fever, by the earis, under the oxstaris, or by the secrete membres maist frequentlie apperis apostumis callit Bubones, without ony other manifest cause, or gif the charbunkil apperis hastelie in ony other part, quhilk gif it dois, in the begining, testifies strenthe of nature helth, and the laitter sic thingis appeir, and apperand, it is the mair deidlie. At sumtym in ane criticall day mony accidentis apperis—principalie vomiteing, spitting of blude, with sweit, flux of womb, bylis, scabe, with dyvers others symptomis maist heavie and detestable."

The signs of death in pestilential persons are as follow:

"Sowning, cold sweats, vomiting: excrements corrupt, teuch; urine black, or colour of lead. Cramp, convulsion of limbs, imperfection of speech and stinking breath, colic, swelling of the body as in dropsy, visage of divers colours, red spots quickly discovering and covering themselves."

The great plague which was the occasion of Skene's writing, probably the most severe that Edinburgh experienced, entered that city on the 8th September, 1568, having been brought, it was said, by "ane called James Dalgliesh, merchant[1]." A letter of 21st September, from the bishop of Orkney, then in Edinburgh, to his brother-in-law Sir Archibald Napier of Merchiston, whose house was near the plague-huts erected on the Muir, refers to the infection as then active:

"By the number of sick folk that gaes out of the town, the muir is liable to be overspread; and it cannot be but, through the nearness of your place and the indigence of them that are put out, they sall continually repair

[1] *Diurnall of Occurrences*, in Chambers.

about your room, and through their conversation infect some of your servants." He advises him to withdraw to a house on the north side. "And close up your houses, your granges, your barns and all, and suffer nae man come therein while it please God to put ane stay to this great plague[1]."

The following account of Edinburgh practices in plague-times is given by Chambers[2]:

"According to custom in Edinburgh the families which proved to be infected were compelled to remove, with all their goods and furniture, out to the Burgh-moor, where they lodged in wretched huts hastily erected for their accommodation. They were allowed to be visited by their friends, in company with an officer, after eleven in the forenoon; anyone going earlier was liable to be punished with death—as were those who concealed the pest in their houses. Their clothes were meanwhile purified by boiling in a large caldron erected in the open air, and their houses were clensed by the proper officers. All these regulations were under the care of two citizens selected for the purpose, and called *Bailies of the Muir;* for each of whom, as for the cleansers and bearers of the dead, a gown of gray was made, with a white St Andrew's Cross before and behind. Another arrangement of the day was 'that there be made twa close biers, with four feet, coloured over with black, and [ane] white cross with ane bell, to be hung upon the side of the said bere, which sall mak warning to the people.'"

The same writer says that the plague lasted in Edinburgh until February, 1569, and that it was reported to have carried off 2500 of the inhabitants. The plague-stricken in the Canongate were sent to huts "on the hill" and money was collected for their support[3].

The plague of 1574 was again chiefly along the shores of the Firth of Forth. It came to Leith on October 14th, it was said by a passenger from England, and several died in that town before its existence was known at large. On October 24th it entered Edinburgh, "brought in by ane dochter of Malvis Curll out of Kirkcaldy[4]." On the 29th October the town council of Glasgow ordered that no one should be allowed to enter from Leith, Kirkcaldy, Dysart, Burntisland and Edinburgh (in respect of Bellis Wynd only), and that no one in Glasgow was to repair

[1] Cited by R. Chambers (*Domestic Annals of Scotland*, I.) from M. Napier's notes to the Spottiswoode Club edition of Spottiswoode's History.

[2] *Op. cit.* I. 53.

[3] *Burgh Records of Canongate.* Maitland Club, Miscellany, II. 313 (in Chambers).

[4] Chambers, I. 94.

to Edinburgh without a pass[1]. Two days after (October 31st) the Scots Privy Council, at Dalkeith, issued an order to check the spreading of the plague landwards "through the departure of sick folk and foul persons:" no one to conceal the existence of plague, and the infected "to cloise thame selffis in[2]." On November 14th the sittings of the Court of Session were suspended owing to pest within some parts of Edinburgh, in Leith, and some towns and parts of the north coast of Fife[3]. In December the Kirk session of Edinburgh appointed an eight days' fast for the plague threatening the whole realm.

In January, 1577, plague is reported to be raging on the English border, causing alarm in Kirkcudbright[4]. On the 19th October, 1579, the king and council are credibly informed that "the infectioun and plague of the pistolence" is not only in divers towns and parts of the coast of England frequented by Scots shipping but also in Berwick and sundry other bounds of the East and Middle Marches of England; the markets at Duns and Kelso are therefore forbidden, and traders not to repair to infected places or to break bulk of their wares[5]. Next year, 1580, on September 10th, a ship laden with lint and hemp from "Danske," with forty persons on board, including seven Edinburgh merchants, arrived in the Forth, and was quarantined for many weeks at Inchcolm; the master and several others died of plague, and the survivors were transferred in November, some to Inchkeith and some to Inchgarvie, the ship being still at Inchcolm in a leaky state. On November 22 a vessel which had come down the Tay with plague-stricken inhabitants of Perth, some of whom were dead, and with their goods and gear, was ordered to the Isle of May[6].

One of the most serious epidemics of plague in Scotland was from 1584 to 1588. It was said to have been brought to Wester Wemyss, in Fife, by a certain "creare;" but it was in some other places at the same time, and was probably a revival of old seeds of the disease. On July 28th the Privy Council issued orders that beggars and tramps should be kept from wandering about[7].

[1] *Burgh Records of Glasgow*, 1573–1581. Maitland Club, p. 27.
[2] *Reg. P. C. Scot.*, II. 415. [3] *Ibid.* p. 419. [4] *Hist. MSS. Com.*, IV. 539.
[5] *Reg. Scots P. C.*, III. 229. [6] *Ibid.* [7] *Ibid.* III. 679.

On the 24th September, 27th October, 4th November, and the 11th December, the Privy Council issued order after order to stop all traffic, unless by licence, from Fife, Perth, and other places north of the Forth; sails were to be taken out of the ferry-boats at all ferries except Burntisland and Aberdour, and eventually at these also, Leith and Pettycur being left free[1]. For Perth we have some particulars of this great outbreak. From the 24th September, 1584, to August, 1585, there died 1437 persons, young and old[2]. It was also in Dysart and other parts of Fife through the winter of 1584–85[3].

The infection appeared at Edinburgh about the 1st of May, 1585, in the Flesh Mercat Close by the infection of a woman who had been in St Johnstone (Perth) where the plague was[4]. On the 18th May orders were issued to Edinburgh to remove all filth, filthy beasts and carrion forth of the highways, and the same to be cleansed and kept clean. On the 23rd June the coining-house was removed to Dundee, and the Court of Session transferred to Stirling[5]. The plague next broke out in Dundee, whence the mint was removed to Perth. At St Andrews it appeared in August, 1585, and became a severe epidemic, causing the dispersion of the students, and continuing so long that the miserable state and poverty of the town are in part ascribed, in a petition of March 24, 1593, to the plague[6]. Upwards of four hundred are said to have died of it there[7]. The state of sickness was much aggravated by wet harvest weather. In Edinburgh it continued through the winter until January, 1586, sometimes carrying off twenty-four in a single night: "the haill people, whilk was able to flee, fled out of the town; nevertheless there died of people which were not able to flee, fourteen hundred and some odd" (Birell). James Melville, riding in November from Berwick to Linlithgow, entered Edinburgh by the Water-Gate of the Abbey at eleven o'clock in the forenoon and rode up

[1] *Reg. Scots P. C.* s. d.

[2] *Chronicle of Perth*, Bannatyne Club, p. 4, and Chambers, I. 154.

[3] *Reg. Scots P. C.*, III. 727.

[4] Calderwood's *Hist. of Kirk of Scotland*, IV. 366: "It was first known to be in Simon Mercerbank's house." Birell's *Diary* (1532–1605) in Chambers, I. 157.

[5] *Scots P. C.*, III. 746.

[6] *Ibid.* V. 56.

[7] Moysie, in Chambers, I. 157.

"through the Canongate, and in at the Nether Bow through the great street of Edinburgh to the West Port, in all whilk way we saw not three persons, sae that I miskenned Edinburgh, and almost forgot that I had ever seen sic a town[1]." The same year it was unusually severe at Duns[2]. In the winter of 1586–7, "the pest abated and began to be strangely and remarkably withdrawn by the merciful hand of God, so that Edinburgh was frequented again that winter, and at the entry of the spring all the towns, almost desolate before, repeopled, and St Andrews among the rest[3]."

In the harvest of 1587 "the pest brake up in Leith, by opening up of some old kists," and in Edinburgh about the 4th November. It continued in those two towns till Candlemas, 1588[4]. On April 26, 1588, the infection is reported anew from Edinburgh, threatening the law session[5]. In October, 1588, it was at Paisley, causing alarm in Glasgow[6].

On the 8th August, 1593, a ship from an English port, with persons and goods suspected of the plague, was quarantined at Inchcolm[7]. Four years after, on the 6th August, 1597, "the pest began in Leith[8]." Twelve days after, August 18, the Privy Council declared that divers inhabitants of sundry towns near Edinburgh were infected, and that the disease was suspected to be in the capital itself[9]. Many fled from Edinburgh, but the epidemic was over by the end of harvest[10].

In the winter of 1598, the plague which was in Cumberland extended to Dumfries, and caused great decay of trade, and even scarcity of food[11]. On the 12th October, 1600, a petition

[1] *The Diary of Mr James Melville*, 1556–1601. Bannatyne Club. Edin. 1829, p. 153.

[2] Marioreybank's *Annals*, in Chambers.

[3] Melville's *Diary*, p. 162.

[4] Melville, p. 173; Calderwood, cited by Chambers; *Cal. Cecil Papers*, III. 298, 310.

[5] *Cal. Cecil Papers*, III. 321.

[6] *Memorabilia of Glasgow*, in Chambers.

[7] *Scots Privy Council.*

[8] Birell, in Chambers.

[9] *Scots P. C.*

[10] Calderwood, v. 655.

[11] Two men sent to buy nolt in Galloway for the needs of the borough of Dumfries were stopped, with 38 head of cattle, by the provost and others of Wigton, at the Water of Crie, the cattle being impounded at Wigton for eight days so that they became lean. A hundred merks compensation was demanded. *Scots Privy Council*, v.

from Dundee declares that the plague of the pest had "entered and broken up within the town of Findorne[1]." Findhorn had been only one of several places infected in that locality; for in December, the Kirk session of Aberdeen ordered a fast "in respect of the fearful infection of the plague spread abroad in divers parts of Moray[2]."

On the 24th November, 1601, the parishes of Eglishawe, Eastwood, and Pollok, in Renfrewshire, and the town of Crail in Fife are declared infected, and ordered to be shut up. On the 28th of the same month it was in the barony of Calderwood, and on the 21st December, in Glasgow. It increased daily in Crail in January, 1602, and suspects were put out on the muir, so that they wandered to sundry parts of Fife. It still continued in Glasgow, and had appeared at Edinburgh before the 4th of February: the town council built shielings and lodgings for the sick of the plague in the lands of Schenis (Sciennes) belonging to Napier, of Merchiston, without his leave, having ploughed up the old plague-muir, and let it for their profit: against the plague-shelters Napier protested on the 11th March. By the 1st of May it had ceased in Edinburgh, and a solemn thanksgiving was held on the 20th (Birell). A ship owned in Crail arrived in the Forth on 30th July, 1602, from "Danske," with three or four dead of the plague, and was quarantined at Inchkeith. In April, 1603, James VI. left for England, to assume the English[3] crown, with which event we resume in another chapter the eventful history of Plague under the Stuarts.

Meanwhile, in the foregoing records of plague in Scotland, the absolute immunity of Aberdeen in the latter half of the sixteenth century is remarkable. It does not depend on any imperfection of the records; for, under the year 1603, the borough register contains this entry[4]: "It has pleasit the guidness of God of his infinite mercy to withhauld the said plague frae this burgh this fifty-five years bygane"—that is to say, since the

[1] *Scots P. C.*, VI. 164.

[2] *Aberdeen Kirk Session Records*, Spalding Club, 1846, Calderwood (cited by Chambers, I. 319) says that the year 1600 was one of famine, and that there was also a great death of young children, six or seven being buried in Edinburgh in a day.

[3] *Scots Privy Council*, VI. under the respective dates. [4] *Burgh Records.*

winter of 1546–47, when David Spilzelaucht was burned on the left hand with a hot iron for concealing a case of plague in one of his children. The northern city may have owed its immunity to various causes; but there can be no question of the Draconian rigour of its decrees against the plague. Following the example of queen Elizabeth at Windsor in 1563, the magistrates in May, 1585, when Perth, Edinburgh and many other places in Scotland were suffering severely from plague, erected three gibbets, "ane at the mercat cross, ane other at the brig of Dee, and the third at the haven mouth, that in case ony infectit person arrive or repair by sea or land to this burgh, or in case ony indweller of this burgh receive, house, or harbour, or give meat or drink to the infectit person or persons, the man be hangit and the woman drownit."

Plague in Ireland in the Tudor period.

The accounts of plague in Ireland in the Tudor period are not many, but some of them are of interest. The province of Munster is said to have had a pestilence raging in it in 1504, evidently not a famine-fever, for the dearth, and mortality therefrom, came in 1505[1]. There is no doubt as to the reality of the next plague in Ireland, in 1520.

The earl of Surrey writes from Dublin to Wolsey, on the 3rd August, 1520: "There is a marvellous death in all this country, which is so sore that all the people be fled out of their houses into the fields and woods, where they in likewise die wonderfully; so that their bodies be dead like swine unburied." On the 23rd July he had already written that there was sickness in the English pale; and on the 6th September he wrote again that the death continued in the English pale[2]. It is perhaps the same epidemic, or an extension of it, that is referred to as the plague raging in Munster in 1522[3]. On the same authority, "a most violent plague" is said to have been in the city of Cork in 1535, and "a great plague" in the same in 1547. The earlier of those dates corresponds probably to a season of ill-health in

[1] Smith's *Cork*, II. 34. [2] *Cal. State Papers.* Domestic.
[3] Smith's *Cork*, on the authority of MS. annals.

Ireland generally: "1536. This year was a sickly, unhealthy year, in which numerous diseases, viz. a general plague, and smallpox [i.e. a disease with an Irish name supposed to be smallpox], and a flux plague, and the bed-distemper prevailed exceedingly[1]." In a State letter from Ireland September 10, 1535, the prevalence of "plague" is mentioned[2].

In the winter of 1566–7, a remarkable outbreak of plague occurred among the English troops quartered around the old monastery of the Derry, at the head of Loch Foyle, where Londonderry was afterwards built. The men were landed there in October, and by November "the flux was reigning among them wonderfully." On December 18 and January 13, many of the soldiers are dead, the rest are discontented, and provisions are short. On February 16, the sickness continues, "in this miserable place," and on March 26, the death at the Derry is said to be by cold and infection: the survivors to be removed to Strangford Haven[3]. Only 300 men were fit for service out of 1100, and several officers of rank were dead. The men's quarters had been built over the graveyard of the ancient abbey, and the infection of plague was ascribed at the time to the emanations from the soil[4]. The scarcity was general in Ireland that winter, and was attended by great mortality. Sir Philip Sydney, the lord deputy, writes to the queen on April 20, 1567: "Yea the view of the bones and skulls of your dead subjects who, partly by murder, partly by famine, have died in the fields is such that hardly any Christian with dry eye could behold[5]."

In 1575 there was a severe and wide-spread outbreak of plague, the localities specially named being Wexford, Dublin, Naas, Athy, Carlow, and Leighlin. The city of Dublin was as if deserted of people, so that grass grew in the streets and at the

[1] *Annals of Loch Cé.* Rolls ed., II. 289.

[2] Brabazon to T. Cromwell. *Cal. State Papers.* Irish.

[3] *Cal. State Papers.* Irish, 1566–7.

[4] *State Papers* (Record Office), Irish, 1567, No. 54. Letter from Lord Treasurer Winchester and Ed. Baeshe, to the Lord Deputy. Mr Froude's summary of it is that "the clammy vapour had stolen into their lungs and poisoned them," and again, "the reeking vapour of the charnel house." I have had difficulty in deciphering the letter, but I can make out "being a graveyard where all their buriall," etc.

[5] *Cal. State Papers.* Irish.

doors of churches; no term was held after Trinity, and prayers were appointed by the archbishop throughout the whole province[1]. The extremity of the plague in Ireland was such that the English troops sent by way of Chester and Holyhead had difficulty in finding a safe place to land[2]. Whether that outbreak had been connected with the military operations (as afterwards in Cromwell's time), the information does not enable us to judge; but Chester and other places near, in direct communication with Ireland, had been visited with plague the year before (1574).

[1] Thady Dowling, p. 41.

[2] *Cal. State Papers.* Domestic. Sept. 1, 1575.

CHAPTER VII.

GAOL FEVERS, INFLUENZAS, AND OTHER FEVERS IN THE TUDOR PERIOD.

THE Common Gaols of England date from the Council of Clarendon, in 1164, by the articles of which the limits of civil and ecclesiastical jurisdiction were fixed, and the quarrel between archbishop Becket and Henry II. reduced to terms. In obedience to Article VII. of the Council, gaols were built, the chief among them having been at Canterbury, Rochester, Huntingdon, Cambridge, Malmesbury, Sarum, Aylesbury, and Bedford[1]. Little is heard of the unwholesomeness of prison life until the medieval period is nearly over—not indeed because the prisons were better managed than they were later. "In the year 1385," says Stow, "William Walworth gave somewhat to relieve the prisoners in Newgate; so have many others since." One benefactor brought a supply of water into Newgate; another, the famous Whittington, left money actually to rebuild the gaol, which was done in 1422. For several years before that, Newgate had been notorious. An ordinance of 7 Henry V. (1419) for the re-establishment of the debtor's prison at Ludgate, so that debtors need not have to go to Newgate gaol, was made in compliance with a petition which said that, in "the hateful gaol of Newgate, by reason of the fetid and corrupt atmosphere, many persons committed to the said gaol are now dead[2]." The greatest mortality must

[1] Stubbs, in his edition of Roger of Howden (Rolls series, No. 51, II. 249), on the evidence of the Pipe Roll of 1166.

[2] *Memorials of London in the 13th, 14th and 15th centuries*, ed. Riley.

have been, according to Stow, in 1414, when the gaolers of Newgate and Ludgate died, and sixty-four prisoners in Newgate[1].

More than a century after, in 1522, there occurred the first of a series of gaol-fever tragedies, which were well calculated to produce the effect ascribed by Aristotle to scenic tragedy, provided only the workings of cause and effect had been more apparent. The first of these historical Black Assizes occurred on the occasion of the gaol delivery at the Castle of Cambridge in Lent, 1522. The facts, which appear to be given nowhere but in Hall's *Chronicle* (of almost contemporary authority), are less fully related than for some of the later instances of the same strange visitation; but there is no mistaking the air of reality and the generic likeness.

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Cambridge Black Assizes.

In the 13th year of Henry VIII. at the Assize held in the Castle of Cambridge in Lent, "the justices and all the gentlemen, bailiffs and other, resorting thither, took such an infection, whether it were of the savour of the prisoners, or of the filth of the house, that many gentlemen, as Sir John Cut, Sir Giles Arlington, Knights, and many other honest yeomen, thereof died, and almost all which were present were sore sick, and narrowly escaped with their lives[2]."

It is to be observed that nothing is said of the prisoners being infected: they were brought from the dungeons to stand their trial in due course, and the gentlemen and yeomen attending the court officially or as jurors, or otherwise, were poisoned by their presence. This early chronicle indicates as the cause, "the savour of the prisoners, or the filth of the house;" and Bacon, in touching upon that class of incidents nearly a century later, indicates "the smell of the gaol," but says nothing of cases of fever among the prisoners, having no warrant in the evidence for doing so.

Before we come to consider the condition of England in the

[1] Stow's *Survey of London*, pop. ed. (1890), p. 66.

[2] Hall's *Chronicle*, ed. of 1809, p. 632.

Tudor period, with the policy of Henry VIII. for the repression of beggary and crime, and the appearance of "new fevers" or "strange fevers" and "laskes" in the chronicles and other records of the time, it will be desirable to make out as accurately as possible the clinical type of the Assizes fever, and its circumstances. For that purpose we must turn to the next recorded outbreak on the occasion of the Assizes at Oxford in 1577, which happens to have been somewhat fully described as a memorable event in the register of Merton College. The entry in the Merton register appears to have been made within a few weeks of the event[1].

Oxford Black Assizes.

The Assizes met on the 5th and 6th July, 1577, in the Castle and Guild Hall. Those only fell ill, whether in Oxford itself or after leaving, who had been present at the Assizes. The two judges (Robert Bell, Chief Baron of the Exchequer and John Barrham, sergeant-at-law), the sheriff of the county, two knights, eight squires and justices of the peace, several gentlemen and not a few of their servants, the whole of the grand jury with one or two exceptions—these all had not long left Oxford when they were seized with illness and died (*statim post fere relictam Oxoniam mortui sunt*). In Oxford itself, on the 15th, 16th and 17th July, some ten or twelve days after the Assizes, about three hundred fell ill; and in the next twelve days there died ("*ne quid errem*") one hundred scholars, besides townsmen not a few. Five died in Merton College, including one fellow, the names of four being given who died on the 24th, 27th, 28th and 29th July. Every college, hall, or house had its dead. Women were not attacked, nor indeed the poor; nor did the infection spread to those who waited on the sick or came to prescribe for them.

[1] This account of the Black Assizes at Oxford in 1577 was brought to light, like so many other things from the register of Merton, first by Anthony Wood in his *Hist. and Antiq. of the Univ. of Oxford* (ed. Gutch, II. 189). It was copied in full, from the original Latin text, in 1758, by John Ward, LL.D., and sent to the Royal Society, in whose *Phil. Trans.* (vol. L. p. 699) it is printed, with remarks, by Tho. Birch, D.D., Sec. R. S.

Only those who had been present at the Assizes caught the fever. The symptoms are described as follows:

> The patients laboured under pain both of the head and of the stomach; they were troubled with phrensy, deprived of understanding, memory, sight, hearing and their other senses. As their malady increased, they took no food, could not sleep, and would not suffer attendants or watchers to be near them; their strength was remarkable, even in the approach of death; but if they recovered they fell into the extreme of weakness. No complexion or constitution was spared; but those of a choleric habit were most obnoxious to the disease. The affected persons suddenly became delirious and furious, overcoming those who tried to hold them; some ran about in courts and in the streets after the manner of insane persons; others leapt headlong into the water. The spirits of all the people were crushed; the physicians fled, and the wretched sufferers were deserted. Masters, doctors, and heads of houses left almost to a man. The Master of Merton remained, *longe omnium vigilantissimus*, ministering sedulously to the sick. The pharmacies were soon emptied of their conserves, oils, sweet waters, pixides and every kind of confection.

This sudden epidemic, which began on the 15th—17th July, did not last long; within the space of one month the city was restored to its former health, so that one wonders, says the registrary of Merton, to see already so many scholars and so many townsmen abroad in the streets and walks.

The infection was suspected by many, says the same eye-witness, to have arisen either from the fetid and pestilent air of thieves brought forth from prison, of whom two or three died in chains a few days before (*quorum duo vel tres sunt ante paucos dies in vinculis mortui*), or from the devilishly contrived and obviously papistical spirits called forth "e Lovaniensi barathro," and let loose upon the court secretly and most wickedly.

The latter explanation arose out of the heated feelings of the time against papist plotters, and has no farther interest. But the statement that two or three of the prisoners had died in chains a few days before has a great interest, as showing the kind of treatment to which they had been subjected while awaiting the gaol delivery. A strange confirmation of the truth of the statement came to light many years after. When John Howard visited the Oxford gaol in 1779, in the course of his humane labours on behalf of the prisoners, he was told by the gaoler that, some years before, wanting to build a little hovel

and digging up stones for the purpose from the ruins of the court, which was formerly in the Castle, he found under them a complete skeleton with light chains on the legs, the links very small. "These," says Howard, "were probably the bones of a malefactor who died in court of the distemper at the Black Assize[1]."

Next to the Merton register's account, we may take that of Thomas Cogan, a graduate in medicine of Oxford, sometime fellow of Oriel, but probably removed to Manchester previous to 1577. Wherever Cogan got his information, he acknowledges no source of the following in his *Haven of Health*, 1589:

"What kind of disease this should be which was first at Cambridge [in 1522] and after at Oxford, it is very hard to define, neither hath any man (that I know) written of that matter. Yet my judgment is, be it spoken without offence of the learned physicians, that the disease was *Febris ardens*, a burning fever. For as much as the signes of a burning ague did manifestly appear in this disease, which after Hollerius be these: Extreame heate of the body, vehement thirst, loathing of meate, tossing to and fro, and unquietnesse, dryness of the tongue rough and blacke, griping of the belly, cholerick laske, cruell ake of the head, no sound sleepe, or no sleepe at all, raving and phrensie, the end whereof, to life or death, is bleeding at the nose, great vomitting, sweate or laske. And this kind of sicknesse is one of those rods, and the most common rod, wherewith it pleaseth God to brake his people for sin...And this disease indeed, as it is God's messenger, and sometimes God's poaste, because it commeth poaste haste, and calleth us quickly away, so it is commonly the Pursuivant of the pestilence and goeth before it....And certainly after that sodaine bane at Oxford, the same yeare, and a yeare or two following, the same kind of ague raged in a manner over all England, and tooke away very many of the strongest sort, and in their lustiest age, and for the most part, men and not women nor children, culling them out here and there, even as you should chuse the best sheepe out of a flocke. And certaine remedy was none to be found....And they that took a moderate sweate at the beginning of their sickness and did rid their stomachs well by vomit sped much better. Yet thanks be to God hitherto no great plague hath ensued upon it."

Besides these medical particulars, he gives certain dates and numbers. It began, he says, on the 6th of July, from which date to the 12th of August next ensuing there died of the same

[1] Howard, *The State of the Prisons in England and Wales*. 3rd ed., Warrington, 1784, p. 342.

sickness five hundred and ten persons, all men and no women: the chiefest of which were the two judges, Sir Robert Ball, lord chief baron, and maister Sergeant Baram, maister Doile the high sheriff, five of the justices, four councillors at law and an attorney. The rest were jurors and such as repaired thither.

An account not unlike Cogan's is given by Stow in his *Annales* (p. 681);

"The 4, 5 and 6 dayes of July were the assizes holden at Oxford, where was arraigned and condemned one Rowland Jenkes for his seditious toung, at which time there arose amidst the people such a dampe, that almost all were smothered, very few escaped that were not taken at that instant: the Jurors died presently. Shortly after died Sir Robert Bell, lord chief baron, Sir Robert de Olie, Sir William Babington, maister Weneman, maister de Olie, high sheriff, maister Davers, maister Harcurt, maister Kirle, maister Phereplace, maister Greenwood, maister Foster, maister Nash, sergeaunt Baram, maister Stevens, and there died in Oxford 300 persons, and sickned there but died in other places 200 and odde, from the 6th of July to the 12th of August, after which died not one of that sicknesse, for one of them infected not another, nor any one woman or child died thereof."

Stow's account differs from that of the Merton College register in several important particulars. The latter is explicit that the sickness appeared among the scholars and townsmen of Oxford on the 15th, 16th and 17th of July, or after an interval of ten days or more, and that the deaths amongst those who had come to Oxford on Assize business did not occur in Oxford but on their return home. On the other hand, Stow makes out the Oxford people to have been smothered by the damp which arose in the court itself: "very few escaped that were not taken ill at that instant;" next come the deaths of the jurors, and "shortly after" those of the judges and other high officials, whose names are given by Stow more fully than by anyone. His total of deaths, the same as Cogan's, is 300 in Oxford and 200 and odd of persons who had left Oxford, and his dates, "from the 6th of July to the 12th of August," are also the same as Cogan's.

Wood's account is for the most part taken from the Merton register and in part from the very different version in Stow's *Annals*; but he has the following new matter: "Above 600 sickened in one night, as a physician that now lived in Oxford attesteth, and the day after, the infectious air being carried into

the next villages, sickened there an hundred more[1]." That, of course, is very unlike the Merton College account, which is explicit that no one caught the fever who had not been in the court. The Oxford physician whose authority is given for the six hundred cases in Oxford in one night, and the extension next day to villages around, is Dr George Ethredge, or Ethryg, a physician and learned Greek scholar living in Oxford at the time and keeping a boarding-house, called George Hall, for the sons of Catholic gentlemen. In 1588 he published a small volume of comments upon some books of Paulus Aegineta, which is the authority given by Wood[2]. On discovering the passage, one finds that it was not 600 in one night, but "sexaginta" or 60, and that the occasion on which more than sixty were taken ill at once in a single night at Oxford, and nearly a hundred next day in the adjacent villages, "whither the infected air had by chance been borne," was not that of the gaol-fever in 1577 but of the sweating sickness in 1551. An extension in the atmosphere to the villages around is just what would have happened in the sweating sickness, a disease in that as in other respects closely analogous to influenza. Ethredge says that, on the particular occasion, "hardly any of the Oxford people died"—a statement which should of itself have prevented Wood's mistake, even if the reference to the same disease having "at the same time" cut off the two sons of the duke of Suffolk "at Cambridge" (therefore a less healthy place than Oxford where hardly any died) had not quite clearly pointed to the sudor Britannicus, which is actually named in the context ("sic enim vocant")[3].

Although, in the passage quoted, it is the sweating sickness

[1] *Hist. and Antiq. Univ. Oxford.* ed. Gutch, II. 188–192.

[2] Georgius Edrichus, 'In Libros aliquot pauli Aeginetae Hypomnemata quaedam.' Londini apud Tomam East 1588 (without pagination).

[3] The passage which Anthony Wood thought to relate to the gaol fever at Oxford in 1577 is the following, under the heading "De morbis publicé grassantibus:" "Publice grassari morbos vidimus Oxonii, et una nocte simul plus sexaginta agrotasse (*sic*) novimus, et in vicinis postridie pagis, eo forte aëre delato, fere centum. Quod etiam eodem tempore, regnante tum Edwardo sexto, Cantabrigiae evenit, cum duo simul liberi ducis inclyti Suffolchiae ibi morerentur. Nec tamen Oxonienses ulli fere interierunt, quod coeli constitutio apud nos quam ibi salubrior sit. Sed iis ita succurrendum morbis putamus, ut Brittanico sudore (sic enim vocant) opitulari solemus."

at Oxford in 1551 that Ethredge refers to, he does also refer to the gaol fever of 1577 in another passage which has hitherto escaped notice.

In the section of his book next following, entitled "De Curatione morborum populariter grassantium, et de Peste," he says that he had used a certain prescription of aloes, ammoniacum and myrrh rubbed together in wine, for himself as well as for others in a serious contagion, "quae fuit in martiali sede cum ibi essem," and also, with happy effect, upon many "in the most cruel pest at Oxford which carried off Judge Bell and ever so many more; one gentleman, I could not persuade to try this medicine, whom therefore I commended to God, and four days after he was dead. Concerning that pestilential fever, many colloquies took place between me and two most learned physicians; and, as to the kind of this contagion, we all agreed (*manibus et pedibus in hanc sententiam itum est*) in a sentence which I quoted from Valescus, who sayeth thus: Those sicknesses are dangerous in such wise that the physicians may be for the most part deceived; for we see a good hypostasis in the urine, and some other good signs, yet the sick person dies"—a remark which often recurs in the early writings on plague.

It has taken longer than usual to determine the matter of fact as to the fever of the Oxford Black Assizes, because an erroneous version passes current on respectable authority; but enough has perhaps been said to enable us to pass from the matter of fact to the matter of theory[1].

The theory of the gaol fever at Oxford, in 1577, was not attempted by any writer at the time, nor indeed has it been so

[1] Anthony Wood, as we have seen in the text, put together his version of the fever of 1577 from the Merton College register, from Stow's *Annals*, and from Ethredge's reference to the sweat of 1551. In 1758, John Ward, LL.D., copied the passage in the Merton register and sent it to the Royal Society; whose secretary, the Rev. Dr Thomas Birch, appended to it in the *Philosophical Transactions* some annotations—"copying," as Carlyle said of him with reference to some Cromwell matter, "from Wood's *Athenae;* and has committed—as who does not?—several errors," his annotations being "sedulous but ineffectual"—to the extent of fixing on the original correct narrative an accretion of mistakes (600 for 60, sweating sickness for gaol fever, &c.). Trusting to the respectable Birch, Bancroft in his *Essay on the Yellow Fever, with observations concerning febrile contagion &c.* (Lond., 1811) has based a theory that the Oxford epidemic was not typhus at all. Murchison (*Continued Fevers of Great Britain*, 2nd ed. 1873, p. 103) has also been misled, and has found himself therefore at a disadvantage in answering Bancroft's empty verbalisms about the invariable reproduction of typhus from some previous case. F. C. Webb, in a paper "An Historical Account of the Gaol Fever," *Trans. Epidem. Soc.* for 1857, p. 63, has not used the Oxford case for any argumentative purpose, but he has, like the others, given the facts erroneously. He gives no particulars of the Exeter Black Assize.

in later times; but the significance of the outbreak has been recognized and admitted. An Oxford scholar, Dr Plot, writing just a century after (1677) mentions the statement that a "poisonous steam" broke forth from the earth, having probably in his mind Stow's imaginative explanation, that a damp arose amongst the people and smothered them, very few escaping that were not taken at that instant. Plot then proceeds:—

"But let it not be ascribed to ill fumes and exhalations ascending from the earth and poysoning the Air, for such would have equally affected the prisoners as judges, but we find not that they dyed otherwise than by the halter, which easily perswades me to be of the mind of my lord Verulam (*Nat. Hist.* cent. x. num. 914) who attributes it wholly to the smell of the Gaol where the prisoners had been long, close, and nastily kept."

We know, indeed, from the register of Merton that "two or three of the prisoners died in chains a few days before," which is a sufficient indication of the state they were kept in, but is no warrant for Anthony Wood's free rendering of the words: "of whom two or three, *being overcome with it* [i.e. with the "nasty and pestilential smell of the prisoners"] died a few days before the Assizes began." Two or three prisoners died in their chains with symptoms undescribed; and although typhus among the inmates of gaols has often occurred, it has also been wanting in many cases where the filth and misery might have bred it in the prisoners themselves[1].

Bacon's judgment on the case, referred to above, was based upon a strict scrutiny of the evidence, and does not transcend the evidence. He attributes the infection that arose in the court to "the smell of the gaol;" and so as not to assume a smell which does not appear to have attracted any particular notice at the time, he is careful to explain in what sense he means the smell of the gaol:

[1] Howard, *On Lazarettos in Europe*, &c. Warrington, 1789, p. 231: "But as I have found, in some prisons abroad, cells and dungeons as offensive and dirty as any I have observed in this country, where however the distemper was unknown, I am obliged to look out for some additional cause of its production. I am of opinion that the sudden change of *diet* and lodging so affects the *spirits* of *new* convicts that the general causes of putrid fever exert an immediate effect upon them. Hence it is common to see them sicken and die in a short time with very little apparent illness." The last words are important.

"The most pernicious infection," he says, "next the plague, is the smell of the jail, when prisoners have been long and close and nastily kept; whereof we have had in our time experience twice or thrice; when both the judges that sat upon the jail, and numbers of those that attended the business or were present, sickened upon it and died. Therefore it were good wisdom, that in such cases the jail were aired before they be brought forth.....

"Leaving out of question such foul smells as be made by art and by the hand, they consist chiefly of man's flesh or sweat putrefied; for they are not those stinks which the nostrils straight abhor and expel, that are most pernicious; but such airs as have some similitude with man's body, and so insinuate themselves and betray the spirits[1]."

Exeter Black Assizes.

The next Black Assizes occurred at Exeter in 1586, nine years after the Oxford tragedy. The Exeter incident has had the fortune to be chronicled by a person as competent as was the writer in the Merton College register in the former case, namely by John Hoker *alias* Vowell, chamberlain of the city, and its representative in Parliament, a lawyer of good education, who must have been conversant with all the circumstances, and wrote his account within six months. He is known as the chief contributor to the second edition of Holinshed's *Chronicle*, in which the history is brought down to 1586, his name appearing on the title-page. It is in that work that he inserted his account of the Exeter Black Assizes, written in October, 1586. The margin bears the words:

"The note of John Hooker *alias* Vowell;" and the text of the note is as follows[2] (III. pp. 1547–8):—"At the assizes kept at the citie of Excester, the fourteenth daie of March, in the eight and twentieth yeare of hir majesties reigne, before Sir Edmund Anderson, Knight, lord chief justice of the common pleas, and sargeant Floredaie, one of the barons of the excheker, justices of the assises in the Countie of Devon and Exon, there happened a verie sudden and a strange sickenesse, first amongst the prisoners of the Gaole and Castell of Exon, and then dispersed (upon their triall) amongst sundrie other persons; which was not much unlike to the sickenesse that of

[1] *Sylva Sylvarum, or A Natural History.* In ten centuries. Cent. 10, §§ 914–15. Spedding's ed. II. 646.

[2] Holinshed's *Chronicle*. New edition by Hoker, London, 1587, pp. 1547–8.

late yeares happened at an assise holden at Oxford, before Sir Robert Bell, Knight, lord chiefe baron of the excheker, and justice then of that assise...

The origin and cause thereof diverse men are of diverse judgment. Some did impute it, and were of the mind that it proceeded from the contagion of the gaole, which by reason of the close aire and filthie stinke, the prisoners newlie come out of a fresh aire into the same are in short time for the most part infected therewith; and this is commonlie called the gaole sickenesse, and manie die thereof. Some did impute it to certain Portingals, then prisoners in the said gaole. For not long before, one Barnard Drake, esquire (afterwards dubbed Knight) had beene at the seas, and meeting with certeine Portingals, come from New-found-land and laden with fish, he tooke them as a good prize, and brought them into Dartmouth haven in England, and from thense they were sent, being in number about eight and thirtie persons, unto the gaole of the castell of Exon, and there were cast into the deepe pit and stinking dungeon[1].

These men had beene before a long time at the seas, and had no change of apparell, nor laine in bed, and now lieing upon the ground without succor or reliefe, were soone infected; and all for the most part were sicke, and some of them died, and some one of them was distracted; and this sickenesse verie soone after dispersed itselfe among all the residue of the prisoners in the gaole; of which disease manie of them died, but all brought into great extremities and were hardly escaped. These men, when they were to be brought before the foresaid justices for their triall, manie of them were so weak and sicke that they were not able to goe nor stand; but were caried from the gaole to the place of judgement, some upon handbarrowes, and some betweene men leading them, and so brought to the place of justice.

The sight of these men's miserable and pitifull cases, being thought (and more like) to be hunger-starved than with sickenesse diseased, moved manie a man's heart to behold and look upon them; but none pitied them more than the lords justices themselves, and especially the lord chief justice himselfe; who upon this occasion tooke a better order for keeping all prisoners thenseforth in the gaole, and for the more often trials; which was now appointed to be quarterlie kept at every quarter sessions and not to be posted anie more over, as in times past, untill the assises.

These prisoners thus brought from out of the gaole to the judgment

[1] These statements by Hoker, chamberlain of Exeter, are sufficiently circumstantial; but they do not quite suit the theory of a writer in the *Dict. Nat. Biog.*, under "Drake, Sir Bernard" that the ship was "a great Portugal ship," called the Lion of Viana, with an English master, taken by Bernard Drake in Brittany. No doubt such a capture is stated in the *Cal. State Papers*, 1585, p. 295 (the reference given), Sir W. Raleigh's ship the "Jobe" being included in the same petition; but nothing is said of Dartmouth as the port to which the two vessels were brought, or of Exeter as the place where their captains were imprisoned. It is of importance for the theory of the Exeter gaol fever to know whether Drake's prisoners were Portuguese fishermen or not, and Hoker may be supposed to have known.

place, after that they had been staied, and paused awhile in the open aire, and somewhat refreshed therewith, they were brought into the house, in the one end of the hall near to the judges seat, and which is the ordinarie and accountable place where they do stand to their triales and arraignments. And howsoever the matter fell out, and by what occasion it happened, an infection followed upon manie and a great number of such as were there in the court, and especially upon such as were nearest to them were soonest infected. And albeit the infection was not then perceived, because every man departed, (as he thought), in as good health as he came thither; yet the same by little and little so crept into such as upon whom the infectio.. was seizoned, that after a few daies, and at their home coming to their owne houses, they felt the violence of this pestilent sicknesse; wherein more died, that were infected, than escaped. And besides the prisoners, manie there were of good account, and of all other degrees, which died thereof; as by name sargeant Floredaie who then was the judge of those trials upon the prisoners, Sir John Chichester, Sir Arthur Basset, Sir Barnard Drake, Knight[1]; Thomas Carew of Haccombe, Robert Carie of Clovelleigh, John Fortescue of Wood, John Waldron of Bradfeeld and Thomas Risdone, esquires and justices of the peace.

...Of the plebeian and common people died verie manie, and especiallie constables, reeves, and tithing men, and such as were jurors, and namelie one jurie of twelve, of which there died eleven.

This sicknesse was dispersed throughout all the whole shire, and at the writing hereof in the time of October, 1586, it is not altogether extinguished. It resteth for the most part about fourteene daies and upwards by a secret infection, before it breake out into his force and violence."

Here we have the same incubation-period as in the Oxford fever, about fourteen days. But in the Exeter case, we have it clearly stated that an infection arose in the prison from the poor Portuguese sailors or fishermen who had been thrown into "deep pit and stinking dungeon" after their capture on the high seas by Sir Bernard Drake, that the infection attacked the other prisoners, that many of the prisoners died and all were brought to extremities, and that those who stood their trial were then in a most feeble state, although they seemed to the pitying spectators to be more starved than diseased.

So far as concerned the infection in the Assize Court, among the lawyers, county gentry, and officials, jurors and others, it was of the same tragic kind as at Oxford in 1577 and at Cambridge

[1] The author of the misadventure. He succeeded in getting home to Crediton, where he died on the 12th April, four weeks after the Assizes began.

in 1522, and, as we shall see, on several occasions in the eighteenth century. But the Exeter case has some features special to itself. Within the gaol were both English felons and thirty-eight Portugals, who had become subject to capture on their way home from the banks of Newfoundland with boat-loads of stock-fish, and to treatment as felons, because Spain and England were at war. Within the gaol there seems to have been also a gradation of misery, a deep pit and stinking dungeon, "in the lowest deep a lower deep," to which were consigned the men of foreign breed, the Portugals. It was among them that deaths first occurred, in what special form we know not. From them an infection is clearly stated by Hoker to have spread through the gaol at large, and to have made many of the prisoners so weak that they had to be carried into court. This is quite unlike what we read of in the Cambridge and Oxford cases, in neither of which was illness noted in the prisoners or asserted of them, although at Oxford two or three had died in chains a few days before. In the Exeter case there were three circles of the damned instead of two only: nay there were four. Farthest in were the Portugals, next to them were the native English felons, then came those present on business or pleasure at the Assizes, and lastly there were the country people all over Devonshire for many months after. We must take all those peculiarities of the Exeter gaol-fever together, and explain them one by another. It was a somewhat elaborated poison. It had passed from the foreign prisoners to the English, and in the transmission had, as it were, consolidated its power; hence, when the prisoners did give it to those who breathed their atmosphere in court, the infection did not limit itself to them, as it certainly did at Oxford and, so far as anything is said, at Cambridge also, and as it usually does in typhus-fever; but it became a volatile poison, it developed wings and acquired staying power, so that its effects were felt over the county of Devon for at least six months longer.

Poverty and Vagrancy in Tudor England.

The Black Assizes of Cambridge (1522), of Oxford (1577), and of Exeter (1586) cast, in each case, a momentary and vivid light upon the state of England in the Tudor period as late as the middle of the reign of Elizabeth. It has been pointed out in a former chapter that prices and wages were favourable to the cultivators of the soil in the fifteenth century, that the English yeomanry sprang up in that period, that village communities and trading towns prospered although their morals were none of the best, and that the civil wars of York and Lancaster were so far from injuring the domestic peace of England that they even secured it. It was the observation of Philip de Comines, more than once quoted before, that England had the "peculiar grace" of being untroubled at large by the calamities of her civil wars, because kings and nobles were left to settle their quarrels among themselves. "Nothing is perfect in this world," says the French statesman, who did not like independence of spirit among the lower orders. But he recognizes the fact as peculiar to England in the fifteenth century; and there can be little doubt about it.

The civil wars were hardly over when the troubles of the common people began. Here, if anywhere, is the turning-point brought into Goldsmith's poem of "The Deserted Village:"

> A time there was, ere England's griefs began,
> When every rood of ground maintained its man.

Deserted villages became a reality in the last quarter of the fifteenth century, and throughout the century following. We hear of this depopulation first in the Isle of Wight, where it affected the national defence and therefore engaged the attention of the State. Two Acts were passed in 1488—9, cap. 16 and cap. 19 of 4 Henry VII. The first declares that "it is for the security of the king and realm that the Isle of Wight should be well inhabited, for defence against our ancient enemies of France; the which isle is late decayed of people, by reason that many towns and villages have been let down, and the fields

dyked and made pastures for beasts and cattle." The second relates that

> "Great inconveniences daily doth increase by desolation and pulling down and wilful waste of houses and towns, and laying to pasture lands which customably have been used in tilth, whereby idleness, ground and beginning of all mischiefs, daily do increase; for where in some towns two hundred persons were occupied and lived by their lawful labours, now be there occupied two or three herdsmen, and the residue fall into idleness." The remedy enacted is that no one shall take a farm in the Isle of Wight which shall exceed ten marks, and that owners shall maintain, upon their estates, houses and buildings necessary for tillage.

An instance of the same depopulation is given by Dugdale in Warwickshire: seven hundred acres of arable land turned to pasture, and eighty persons thrown out of employment causing the destruction of sixteen messuages and seven cottages. An instance of the same kind has already been quoted from the neighbourhood of Cambridge as early as 1414; but it is not until the settlement of the dynastic quarrels and jealousies, partly on the victories of Edward IV. at Barnet and Tewkesbury in 1471, and completely after the victory of Henry Tudor at Bosworth in 1485, that agrarian troubles became general. Then began the famous *enclosures*—enclosures both of the "wastes" of the manors, and of the open cultivated fields of the manors in which all the orders of villagers had their share of tenancy.

A few years after, in 1495, the number of vagabonds and beggars had so increased, of course in consequence of the enclosures, that a new Act was required, cap. 2 of the 11th of Henry VII. "Considering the great charges that should grow for bringing vagabonds to the gaols according to the statute of 7 Richard II., cap. 5, and the long abiding of them therein, whereby it is likely many of them would lose their lives:" therefore to put them in the stocks for three days and three nights upon bread and water, and after that to set them at large and command them to avoid the town, and if a vagabond be taken again in the same town or township, then the stocks for *four* days, with like diet. The deserving poor, however, were to be dealt with otherwise, but in an equally futile manner. In 1503–4, by the 19th of Henry VII. cap. 12, the period in the stocks was reduced to one day and one night (bread and water

as before), probably in order that all vagabonds might have their turn.

The most correct picture of the state of England under Henry VII. and Henry VIII. is given by Sir Thomas More. The passages in his *Utopia*, relating to the state of England may be taken as veracious history. A discussion is supposed to arise at the table of Morton, archbishop of Canterbury, who was More's early patron, and who died in 1500. "I durst boldly speak my mind before the Cardinal," says the foreign observer of our manners and custom, Raphael Hythloday; and then follows an account of the state of England which lacks nothing in plainness of speech.

"But let us consider those things that chance daily before our eyes. First there is a great number of gentlemen, which cannot be content to live idle themselves, like drones, of that which other have laboured for: their tenants I mean, whom they poll and shave to the quick by raising their rents (for this only point of frugality do they use, men else through their lavish and prodigal spending able to bring themselves to very beggary)—these gentlemen, I say, do not only live in idleness themselves, but also carry about with them at their tails a great flock or train of idle and loitering serving-men, which never learned any craft whereby to get their living. These men, as soon as their master is dead, or be sick themselves, be incontinent thrust out of doors....And husbandmen dare not set them a work, knowing well enough that he is nothing meet to do true and faithful service to a poor man with a spade and a mattock for small wages and hard fare, which being daintily and tenderly pampered up in idleness and pleasure, was wont with a sword and a buckler by his side to strut through the street with a bragging look, and to think himself too good to be any man's mate.

Nay, by Saint Mary, Sir, (quoth the lawyer), not so. For this kind of men must we make most of. For in them, as men of stouter stomachs, bolder spirits, and manlier courages than handicraftsmen and ploughmen be, doth consist the whole power, strength and puissance of our army, when we must fight in battle."

So much for the serving-men of the rich, apt to be discarded to swell the ranks of poverty and crime. But further:—

"There is another cause, which, as I suppose, is proper and peculiar to you Englishmen alone.—What is that? quoth the Cardinal.—Forsooth, my lord, quoth I, your sheep that were wont to be so meek and tame, and so small eaters, now, as I hear say, be become so great devourers and so wild that they eat up and swallow down the very men themselves. They consume, destroy and devour whole fields, houses and cities. For look in what parts of the realm doth grow the finest and therefore dearest wool, these noblemen

and gentlemen, yea and certain abbots, (holy men, no doubt), not contenting themselves with the yearly revenues and profits that were wont to grow to their forefathers and predecessors of their lands, nor being content that they live in rest and pleasure, nothing profiting yea much annoying the weal public leave no ground for tillage; they inclose all into pastures; they throw down houses; they pluck down towns and leave nothing standing, but only the church to be made a sheep-house. And as though you lost no small quantity of ground by forests, chases, lawns, and parks, these holy men turn all dwelling-places and all glebe-land into desolation and wilderness. Therefore the one covetous and insatiable cormorant and very plague of his native country may compass about and inclose many thousand acres of ground together within one pale or hedge; the husbandmen be thrust out of their own, or else either by cunning and fraud, or by violent oppression they be put besides it, or by wrongs and injuries they be so wearied that they be compelled to sell all. By one means, therefore, or by other, either by hook or crook, they must needs depart away, poor silly wretched souls, men, women, husbands, wives, fatherless children, widows, woeful mothers with their young babes, and their whole household small in substance and much in number as husbandry requireth many hands. Away they trudge, I say, out of their known and accustomed houses, finding no place to rest in. All their household stuff, which is very little worth, though it might well abide the sale, yet being suddenly thrust out, they be constrained to sell it for a thing of nought. And when they have wandered abroad till that be spent, what can they then else do but steal, and then justly, pardy! be hanged, or else go about a begging. And yet, then also they be cast in prison as vagabonds, because they go about and work not; whom no man will set a work, though they never so willingly profer themselves thereto."

Thus were the gaols filled. The policy of Henry VIII. was to hang for petty theft—"twenty together upon one gallows." And yet the lawyer, the defender of the king's firm rule, "could not choose but greatly wonder and marvel, how and by what evil luck it should come to pass that thieves nevertheless were in every place so rife and rank."

These descriptions of the state of England were written about 1517, and the recitals in various Acts of Henry VIII. bear them out. Thus, in 1514 and 1515 (6 Hen. VIII. cap. 5, and 7 Hen. VIII. cap. 1), the towns, villages and hamlets, and other habitations decayed in the Isle of Wight are to be re-edified and re-peopled. In 1533–4 (25 Hen. VIII. cap. 13), there is a more comprehensive Act against the aggrandisements of pasture-farmers, "by reason whereof a marvellous multitude of the people of this realm be not able to provide meat, drink

and clothes necessary for themselves, their wives, and children, but be so discouraged with misery and poverty that they fall daily to theft, robbery, and other inconvenience, or pitifully die for hunger and cold." Some greedy and covetous persons have as many as 24,000 sheep: no one to keep above 2,000 sheep under the penalty of 3*s.* 4*d.* for every sheep kept by him above that number. Ten years after comes the well-known Act relating to the decay of towns[1] (35 Hen. VIII. cap. 4).

Besides these recitals in Acts of Parliament, we have other glimpses of the causes of agrarian distress. Thus, in a letter of June 24, 1528, from Sir Edward Guildford to Wolsey: Romney Marsh is fallen into decay; there are many great farms and holdings in the hands of persons who neither reside on them, nor till, nor breed cattle, but use them for grazing, trusting to the Welsh store cattle[2].

In Becon's *Jewel of Joy*, written in the reign of Edward VI. the same condition of things is described:

"How do the rich men, and specially such as be sheepmongers, oppress the king's liege-people by devouring their common pastures with their sheep, so that the poor people are not able to keep a cow for the comfort of them and of their poor family, and are like to starve and perish for hunger, if there be not provision made shortly...Rich men were never so much estranged from all pity and compassion toward the poor people as they be at this present time...They not only link house to house, but when they have gotten many houses and tenements into their hands, yea whole townships, they suffer the houses to fall into utter ruin and decay, so that by this means whole towns are become desolate and like unto a wilderness, no man dwelling there except it be the shepherd and his dog." The interlocutor in the dialogue answers: "Truth it is. For I myself know many towns and villages sore decayed; for whereas in times past there were in some town an hundred households, there remain not now thirty; in some fifty, there are not now ten; yea (which is more to be lamented) I know towns so wholly decayed that there is neither stick nor stone, as they say....And the cause of all this wretchedness and beggary in the common weal is the greed of gentlemen which are sheepmongers and graziers[3]."

[1] Sir George Nicholls, in his *History of the English Poor Law*, 1854, I. 113, threw out the suggestion that the decay was in the old walled towns, and that it was compensated by the rise of populations on less hampered sites. This theory has been adopted by some later writers.

[2] *Calendar of State Papers*. Domestic, Hen. VIII.

[3] Becon's *Works*, 3 vols. II. fol. 15–16.

Again, in Bullein's *Dialogue of the Fever Pestilence* (1664), the groom Roger who accompanies the citizen and his wife to the country, in the direction of Barnet, points out an estate on which the rents had been raised; the fields had been turned into large pastures, and all the houses pulled down save the manor house: "for the carles have forfeited their leases and are gone a-begging like villaines, and many of them are dead for hunger."

Vagabonds, beggars, valiant beggars, sturdy beggars, and ruffelers continue to occupy the pages of the Statute Book for many years. In 1530–31 (a long and elaborate Act), and in 1535–6, they are to be repressed by the stocks, by whipping, and ear-cropping; "and if any ruffeler, sturdy vagabond, or valiant beggar, having the upper part of the right ear cut off as aforesaid, be apprehended wandering in idleness, and it be duly proved that he hath not applied to such labours as have been assigned to him, or be not in service with any master, that then he be committed to gaol until the next quarter sessions, and be there indicted and tried, and, if found guilty, he shall be adjudged to suffer death as a felon." A still more distracted Act was made by the Lord Protector in 1547 (1 Ed. VI. cap. 3): if the vagabond continue idle and refuse to labour, or run away from work set him to perform, he is to be branded with the letter V, and be adjudged a slave for two years to any person who shall demand him, to be fed on bread and water and refuse-meat, and caused to work in such labour, "how vile soever it be, as he shall be put unto, by beating, chaining, or otherwise." If he run away within the two years, he is to be branded in the cheek with the letter S, and adjudged a slave for life; and if he run away again he is to suffer death as a felon. Similar provisions are made for "slave-children;" while the usual exceptions are brought in for the impotent poor. The above statute remained in force for only two years, having been from the first a monstrous insult to the intelligence of the nation, and never applied. It was succeeded by two meek-spirited Acts, 3 and 4 Ed. VI. cap. 16, and 5 and 6 Ed. VI. cap. 2, in which the impotent poor are provided for:—collectors in church to "gently ask and demand alms for the poor." By the 1st of Mary, cap. 13, the collections for the poor were made weekly. When Elizabeth came to the

throne, greater pressure was put upon the well-to-do to support the poor: by the Act of 5 Eliz. cap. 3 (1562–3) those who obstinately refused voluntary alms might be assessed. A more important Act of Elizabeth was that of her 14th year (1572–3) cap. 5, "For the Punishment of Vagabonds and for Relief of the Poor and Impotent." A vagabond, as before, is to be whipped, and burnt on the ear; for a second offence to suffer death as a felon "unless some honest person will take him into his service for two whole years;" and for a third offence to suffer death and loss of lands and goods, as a felon, without allowance of benefit of clergy or sanctuary. Aged and infirm poor, by the same Act, are to be cared for by "overseers of the poor" in every parish, and to have abiding places fixed for them. In 1575–6 (18th Eliz. cap. 3), the Act of 1572–3 was amended and explained: "collectors and governors of the poor" are to provide a stock of wool, hemp, iron etc. for the poor to work upon, and "houses of correction," or Bridewells, are to be built—one, two or more in every county for valiant beggars or such other poor persons as refuse to work under the overseers or embezzle their work. The last and greatest poor-laws of Elizabeth's reign were those of her 39th year (1597–8) caps. 3 and 4 and her 43rd year (1601) cap. 2. These remained the basis of the English poor-law down to a recent period. Overseers of the poor are appointed in every parish—the churchwardens *ex officio* and four others appointed by the justices in Easter week: the overseers to meet once a month in the parish church after divine service on the Sunday: contributions to be levied by the inhabitants of any parish among themselves, or the parish or hundred to be taxed by the justices, failing the contributions, or, if the hundred be unable, then the county to be rated "in aid of" the parishes.

These being the developments of the poor-law and the law against vagabonds to the end of the Tudor period, we may now return to our particular illustrations, and more especially to the illustrations from popular sickness.

Under the year 1537, one of the citizen chroniclers of London has an entry, "Began a collection for the poor, and a great number cured of many grievous diseases through the charity thereof." Under 1540, he records that "the collection for the

poor people ceased[1]." Preaching before Edward VI. on the fourth Sunday in Lent, 1550, Thomas Lever, Master of St John's College, Cambridge, said: "O merciful Lord! what a number of poor, feeble, halt, blind, lame, sickly—yea with idle vagabonds and dissembling caitiffs mixed among them, lie and creep, begging in the miry streets of London and Westminster[2]." In May, 1552, Ridley wrote to Cecil that the citizens were willing to provide for the poor "both meat, drink, clothing and firing;" but they lacked lodging, and he wanted the king to give up Bridewell "to lodge Christ in," or in other words, the poor "then lying abroad in the streets of London."

Coming to the middle of Elizabeth's reign, in the year 1579 we find, in an essay dedicated to the queen by Dr John Jones upon general topics of health and morals, an account of poverty and crime which reads little better than Sir Thomas More's for 1517. In his 31st chapter on "The great cost that the commonwealth is at daily in relieving the poore: Of the number of them that are yeerly executed," he speaks of the new poor-rate as "a greater tax than some subsidies," and as a "larger collection than would maintain yeerly a good army;" and, of the felons as "a mightier company of miserable captives than would defend a large country, as in the records of the Clerks of the Peace and of the Assize may easily be seen."

Even from the outset, the poor-rate does not appear to have met the difficulty:

"And yet housekeepers be but little less discharged, if ye note the continual resort of the needy, especially in the country and towns that be incorporate, the poor (as they say) not much the more aided, as by the moan they make to travellers may be easily gathered, nor theft and wickedness the less practised. For what misery it is to see condemned at one assize in a little shire thirty-nine, notwithstanding the clemency of the Judges, and three hundred and odd in one Diocese to do penance or fine for their loose living in a year. But these be the meanest sort only, for the others scape as though it were in them no offence. And in one gaol of prisoners three hundred and upwards at one time, whereof a great part perhaps may be through negligence of justice or cruelty, that otherwise might be punished answerably to the offences lawfully."

[1] Continuation of Fabyan's *Chronicle*.

[2] Greyfriars *Chronicle*, Camden Soc. LIII., 1852. Preface by J. G. Nichols, xxiv.

He then refers to the Bridewells "so charitably and politicly appointed by the late Act of Parliament, although not yet in every shire erected." The Act of Parliament was that of 1572 and the Bridewells were the houses of correction for vagrants, the first type of workhouses, and so named after the Bridewell in Fleet Street, which was given by Edward VI. from being a royal residence to be a refuge of the poor. So far as fever was concerned, it mattered little whether the Bridewell were a poors-house or a prison, for in later times gaol fever and workhouse fever were both synonyms for typhus.

It would not have been surprising to find this enormous extent of pauperism, vagrancy and crime attended by the distinctive *morbus pauperum*, typhus-fever. But we are here concerned only with the evidence, and not with antecedent probabilities. The records are, of course, very imperfect. The gaol-fevers of Cambridge, Oxford and Exeter attracted much notice because they touched the governing class. There may have been much more gaol-fever unrecorded. Hoker, in his account of the Exeter fever, does indeed say: "and this is commonly called the gaol sickness, and many die thereof;" and, in a petition to the Crown, March, 1579, the Queen's Bench prison in Southwark is said to contain twice its complement, there is in it a disease called "sickness of the house," and near a hundred had died of that sickness in the prison during the previous six years[1]. We shall not be able to give colour to our epidemiological history by other such instances from the Tudor period[2]; even for plague itself, the records of particular out-

[1] Strype's ed. of Stow's *Survey of London*.

[2] In the Rolls of the Middlesex Sessions (Middlesex Record Society), there occur numerous entries of inquests on deaths in the gaol of Newgate from the 25th year of Elizabeth: a few of these are from plague; but by far the larger number are from "the pining sickness," a malady which sometimes cut off several prisoners in the same few days and after a brief illness. In one of these epidemics (Dec. 1586—Feb. 1587), a single case is called "pestilent fever," the other seven being "pining sickness." Next year, June 19, there is a case of bloody flux, and, on June 24, a case of "pining sickness." The other periods when the disease so named was epidemic in Newgate were Feb.—May, 1595, June and July, 1597, March, 1598, and March—April, 1602. The pining sickness was probably a generic term, and may have included chronic disease; there is a solitary case entered as ailing for as long a period as eight months,

breaks are meagre and almost certainly only a part of the whole. The epidemics which shall occupy us for the rest of this chapter are those that had a general prevalence over the country on two or three occasions, the same general prevalence of fever that recurs at shorter intervals in the Stuart period and in the eighteenth century.

Hitherto we have attempted to work out the history of epidemics in Britain without reference to the epidemics in other countries, except in the case of the Black Death, which had remarkable antecedents in the remote East, and in the case of the English Sweat of 1528, which overran a great part of the Continent in 1529 and 1530. To have attempted a parallel record of epidemics abroad would have served inevitably to confuse the vision; for the annals of pestilence in all Europe would have been from year to year an unrelieved record of sickness and death, an unnatural continuance or sequence, from which the mind turns away. The several countries of Europe, and the several cities, had each their turn of plague; but they had each, also, their free intervals, sometimes very long intervals, as we have seen in the case of Aberdeen with no plague for nearly two generations in the sixteenth century. The epidemiography of each country should therefore be kept apart; and

the usual duration of the sickness being one, two, or three days up to three or four weeks.

This place will serve to notice the strange teaching about "parish infection" which has received currency among the writers of good repute as authorities. Guy (*Public Health*, Lectures, 1870, I. 23) says the gaol distemper was an old offender known as the *sickness of the house*: "I think I recognize it in the London Bills from 1606 to 1665 as the *Parish Infection.*" The column of figures in the London Bills which has been taken to show the weekly prevalence of a disease, otherwise unheard of, "parish infection," really shows the number of "parishes infected." The earlier bills showed, in the corresponding column, the number of parishes clear ("parish. clere" or "paroch.clere"). By adding up the number of parishes infected in each of the 52 weeks of a bad plague-year, a total of some thousands is got, and that total has been taken to be the annual mortality from "parish infection"—a pure myth. The original author of this singular mistake appears to have been Marshall, in his *Mortality of the Metropolis*, London, 1832, p. 67. Of the "parish infection," he says: "The disease below is specified by Mr Bell in his *Remembrancer* [1665]; it is probably the same as exhibited under the name of spotted fever." What Bell "specifies" is not another disease, but the number of parishes in the City and suburbs infected with the plague in each week of the year.

within a given country care should be taken to prevent the illusion of universal sickness, which is apt to be created in the bringing of scattered centres of disease (such as plague) together in the same page.

But there are instances of what are called pandemics, or universal epidemics, of sickness. The Black Death was one such, covering a period of perhaps four years in Europe, from 1347 to 1350, the curve of the disease in each locality lasting about six months. With the beginning of the modern period we come to more frequent pandemics, not of plague, but of minor or milder forms of pestilential infection. On the continent of Europe these were in part related to the state of war, which may be taken as beginning with the invasion of Italy by Charles VIII. of France in 1494. Typhus-fever, or war-fever with famine-fever, now begins to be a familiar form of sickness —in 1498, 1505, 1510, 1528, and so on. Other forms are putrid sore throat, dysentery, and varieties of fever included under influenza. The various forms were apt to occur together or in succession, so that epidemiography has a "Protean" character. This epidemic Proteus is at once a great difficulty and a most instructive fact. It opens up the very old doctrine of "epidemic constitutions" of the air, which to many moderns savours of unscientific vagueness; and it brings us face to face with degrees or kinds of infectiveness which are, in matter of fact, more wonderful or more incomprehensible than the deadlier infections, such as the plague or Asiatic cholera. The most familiar instance of the kind is influenza.

Influenza.

Influenza enters undoubtedly into the Protean infections of the sixteenth century, and is itself no small part of the Proteus. But what is influenza? The name is comparatively modern—Italian of the 18th century—and appears to mean defluxion or catarrh, not in the familiar sense only, but as derived from the comprehensive pathological doctrine of humours: thus the Venetian envoy in London called the sweat of 1551 an "influsso." It is open to us to include much or little under influenza; but

the name itself, having its root in an obsolete doctrine of humours, can never be made exact or scientific. Usage has applied it to all universal colds and coughs; and it has been applied capriciously to some universal fevers, but not to others. There are two tolerably clear references to its prevalence in England before the peculiarly unwholesome state of Europe began with the modern age. Under the year 1173, the chronicle of Melrose enters "a certain evil and unheard-of cough" (*tussis quaedam mala et inaudita*), which affected everyone far and near, and cut off many.

One of the St Albans chroniclers, an unknown writer who kept a record from 1423 to 1431 (reign of Henry VI.), has the following entry under the year 1427: "In the beginning of October, a certain rheumy infirmity (*quaedam infirmitas reumigata*) which is called '*mure*' invaded the whole people, and so infected the aged along with the younger that it conducted a great number to the grave[1]." A good deal is said in this brief passage, and all that is said points to influenza—the rheumy nature of the malady, the universality of incidence, presumably the suddenness and brief duration, the deaths among the aged and the more juvenile. It is known also that a similarly general malady was prevalent the same year in Paris, where it bore the name of *ladeudo*; the particulars given in the French record of it leave no doubt that it was influenza.

The singular name of *pestilentia volatilis* given by Fordoun to two epidemics in Scotland in his own lifetime, one which began at Edinburgh in February, 1430 (1431 new style), and the other at Haddington in 1432, suggests that they may have been influenzas, but there is nothing more than the name to indicate their nature. Those years are not known to have been years of

[1] *Annales Monastici*, Rolls series, No. 19. Chronicle by an unknown author (St Albans) temp. Hen. VI., 1422–31:—"Quaedam infirmitas reumigata invasit totum populum, quae *mure* dicitur: et sic senes cum junioribus inficiebat quod magnum numerum ad funus letale deducebat."

In the Report of the Irish Local Government Board, Medical Department, 1890, influenza is identified under the name "slaedan," or prostration, which was epidemic in Ireland in 1326 or 1328, the same epidemic being called "murre" in the *Annals of Clonmacnoise*. The use of the word "mure" in the St Albans Chronicle is just a century later. Murrain (or *morena* in Latin chronicles) is probably the modern survival of "mure" or "murre."

influenza in any other country of Europe: the record of the malady passes direct from 1427 to 1510. There was certainly a great wave of influenza over Europe in 1510, under the names of *cocqueluche* and *coccolucio*. It is said to have come up from the Mediterranean coasts and to have extended to the shores of the Baltic and North Seas; its prevalence in Britain is likely enough, and is indeed asserted in one foreign account, but there is no known native notice of it. Abroad, it had the usual character of suddenness, simultaneity and universality, and the symptoms of heaviness, prostration, headache, restlessness, sleeplessness, and for some time after a violent paroxysmal cough, like whooping-cough. None died except some children; in some it went off with a looseness, in others by sweating[1]. The mention of sweating in the influenza epidemic of 1510 is not without importance. It may serve to explain a remark by Erasmus, in a letter of 25th August, 1511, from Queens' College, Cambridge, that his health was still rather doubtful "from that sweat" (*a sudore illo*[2]); the sweat can hardly have been the sweating sickness of 1508, three years before, but the still unsettled health of Erasmus in 1511 may perhaps have been the dregs of the influenza of 1510.

The next great European epidemic of influenza was in 1557, for which I shall produce medical evidence of England sharing in it, probably during that year and certainly in the one following. But the intervening years afford some notices of sickness in England, which was neither so severe as plague at one end of the pestilential scale nor altogether mild at the other, being forms of illness which contemporaries pronounced to be "new" and "strange," and appear to have been of the nature of pestilent fever and dysentery.

Neither typhus nor dysentery was really new to England in the sixteenth century; on the contrary, they were (with putrid sore throat and lientery) the common types of disease in the

[1] I take this summary from Short (*Chronology*, etc. I. 204), who omits his authority, probably the foreign writers to whom he is usually indebted in the earlier period. The first part of Theophilus Thompson's *Annals of Influenza* (Sydenham Society) is little else than extracts from Short, and therefore of foreign origin.

[2] *Cal. State Papers.* Domestic, *sub dato.*

great English famines which came at long intervals, as described in the first chapter. But on the continent of Europe typhus and dysentery and putrid sore throat (*angina maligna*) began with the modern age to appear as if capriciously, and independently of such obvious antecedents as want, although some of the epidemics of typhus and dysentery were clearly related to the hardships of warfare[1]. Typhus, indeed, was a disastrous malady on the Continent in those years, notably in 1528 in Spain, where it was known as "las bubas," and in France, where it was called "les poches"—both names relating to the spots on the skin, and both more strictly applicable to the eruptions of the lues venerea, which was then also rampant.

Apart from the gaol fever at Cambridge in 1522, the first mention of those new epidemics in England since the end of the medieval period is under the year 1540: "This said xxx and two year [of Henry VIII.] divers and many honest persons died of the hot agues and of a great lask throughout the realm[2]." The "lask" was dysentery, (Stow, in chronicling the epidemic in his much later *Annales* calls it "the bloody flux"), and the "hot agues," according to later references under that name, appear to have been influenza in the sense of a highly volatile typhus[3]. All that we know of the circumstances of this epidemic is that the summer was one of excessive drought, that wells and brooks were dried up, and that the Thames ran so low as to make the tide at London Bridge not merely brackish but salt.

[1] Thus in the continuation of Fabyan's Chronicle under the year 1512, the Marquis of Dorset, sent into Spain with 10,000 men, is said to have "returned in winter by reason of the flix (dysentery)." And in Hall's *Chronicle* (ed. of 1807, p. 523), we have particulars of the very serious sickness in his army in Biscay; owing to their diet being largely of garlic and fruits, and their drink being hot wines in hot weather, "there fell sick 3000 of the flix, and thereof died 1800 men."

[2] Continuator of Fabyan's *Chronicle*, sub anno. There is an almost identical entry in *A London Chronicle of Henry VII. and Henry VIII.* (Camden Miscellany, vol. v. 1859), but under the year 1539, in a hot and dry summer. The most discrepant date and designation of the epidemic of those years are those given in Hardiman's *History of Galway* (p. 40): "This charitable institution [St Bridget's Hospital] was fortunately completed in the year 1543, when the sweating sickness broke out, and raged with great violence, destroying multitudes of the natives, and particularly the tradesmen of the town."

[3] The term "hot ague" occurs as early as 1518, in a letter of 18 July (*Cal. State Papers*).

The spring and summer of 1551 were the seasons of the last outbreak of the sweat in England, which curiously coincided with another epidemic of influenza (*cocqueluche*) in France. The years from 1555 to 1558 were a sickly period for all Europe, the diseases being of the types of dysentery, typhus, and influenza. The most authentic particulars are given under the years 1557 and 1558; and those for England, which specially concern us, are now to be given. Wriothesley, a contemporary, enters under the year 1557: "This summer reigned in England divers strange and new sicknesses, taking men and women in their heads; as strange agues and fevers, whereof many died[1]." Under the year 1558, the continuator of Fabyan's chronicle says: "In the beginning of this mayor's year died many of the wealthiest men all England through, of a strange fever[2]."

Some light is thrown upon the sickness, general throughout England in 1557–8, also by Stow in his *Annales*. Before the harvest of 1557 corn was at famine prices, but after the harvest wheat fell to an eighth part of the price (5*s*. the quarter), the penny wheaten loaf being increased from 11 oz. to 56 oz.! In the harvest of 1558, he goes on, the "quartan agues continued in like manner, or more vehemently than they had done the last year passed, where-through died many old people and specially priests, so that a great number of parishes were unserved and no curates to be gotten, and much corn was lost in the fields for lack of workmen and labourers[3]." Harrison, canon of Windsor, says that a third part of the people of the land did taste the general sickness, which points to influenza[4].

[1] Wriothesley, *A Chronicle of England during the reigns of the Tudors* (1457–1559). Camden Society, II. 139.

Anthony Wood also enters for Oxford, under 1557, "A pestilential disease to the settling of some and the driving away of many; the causes of which proceeding from the eating of green fruit, the Commissary commanded that none should be sold in the market or elsewhere in Oxford."

[2] Fabyan's *Chronicle*, p. 711.

[3] Stow's *Annales*, ed. Howse, p. 631. Speed also has a paragraph, unusual with him, on the state of health in the year of Queen Mary's death (1658), in which the mortality among the clergy is specially mentioned.

[4] Extracts from Harrison's MS. *Chronologie* by Furnivall, in Appendix to *Elizabethan England*. Camelot series, 1890, p. 267. His famine prices, and the enormous fall of them after harvest, are the same as given by Stow.

The year 1557 was certainly remarkable on the continent of Europe as a year of widely prevalent "pestiferous and contagious sickness," which was described by numerous medical writers. That universal epidemic, or pandemic, is usually counted as one of the great historical waves of influenza; and in the annals of that wonderful disease it stands the first which was well recorded by competent foreign observers, including Ingrassias, Gesner, Rondelet, Riverius, Dodonaeus, and Forcest. The corresponding sickness in England in 1557 (still more severe in 1558), which carried off many of the wealthiest men, and made so great an impression that it is noticed by Stow and Speed, has missed being noticed by English physicians, with a single exception, and that a casual one. If the continental physicians had not been copious in writing on several occasions when our English physicians were silent, such as the epidemic of syphilis in 1494–6, the English sweat of 1529, and the influenza of 1557–8, it might appear ungracious to remark upon the scanty literary productiveness of the profession in the Tudor period. Whoever attempts medical history for England will soon feel our deficiency in materials, and become disposed to envy the easier task of the foreign historian. The academical physicians of the time hardly ever wrote. The men who wrote on medicine were laymen like Sir Thomas Elyot, who justified his interest therein by the example of men of his own rank like Juba, king of Mauritania, and Mithridates, king of Pontus; or they were irregular practitioners desirous to advertise themselves; or booksellers' hacks like Paynel; or such as Cogan, a schoolmaster and a physician in one. The modern reader will be surprised at the common burden of the prefaces of medical (and perhaps other) books in the Tudor period,—the intolerable nuisance of "pick-faults," "depravers," and cavillers, who sat in their chairs and criticised; and if the modern reader happen to be in quest of authentic facts, he can hardly fail to sympathise with Phaer, when he addresses the academical dog-in-the-manger with the Horatian challenge: "Si quid novisti rectius istis, candidus imperti; si non, his utere mecum."

It is possible, however, to collect a few particulars of the prevalent sickness of 1558 in England from casual notices of it.

Thus, it comes into a letter to the queen, of September 6, by Lord St John, governor of the Isle of Wight, from his house at Letley, near Southampton: sickness affected more than half the people in Southampton, the Isle of Wight and Portsmouth (those places being filled with troops under St John's command), and the captain of the fort at Sandown was dead[1]. Curiously enough we get an intimate glimpse of this epidemic from a book published some years after, the *Dyall of Agues* by Dr John Jones. In his chapter "Of the Sweating Fevers" (chapter xiv), after illustrating from Galen the proposition that a sweat may not be critical and wholesome, but τυφώδης or typhus-like, attending the seizure from its outset and "the same said sweat little or nothing profiting," he proceeds to point his remarks by his own experience:

"I had too good experience of myself in Queen Mary's reign, living at Lettlé in my good lord's house, the right honourable Lord St John, beside Southampton, the which, notwithstanding the great sweat, it was long after before I recovered of my health, so that the said sweat did nothing profit."

He then proceeds to compare the sweat, almost certainly the epidemic mentioned in St John's despatch of 6th September, 1558, with the sweating sickness of 1551:

"So in our days, even in King Edward VI.'s reign, it brought many to their long home, as some of the most worthy, the two noble princes of Suffolk, imps of honour most towardly, with others of all degrees infinite many; and the more perished no doubt for lack of physical counsel speedily[2]."

The next that we hear of this epidemic of the autumn of 1558, is in a despatch from Dover, 11 p.m. 6th October: the writer has "learnt from the mayor of Dover that there is no plague there, but the people that daily die are those that come out of the ships, and such poor people as come out of Calais, of the new sickness[3]." A despatch of 17th October, 1558, from one of the commissioners for the surrender of Calais, Sir Thomas Gresham, at Dunkirk, to the Privy Council, says that he "returned hither to write his letter to the queen, and found

[1] *State Papers*, Record Office.

[2] John Jones, M.D. *The Dyall of Ague*, London, 1564?

[3] *Calendar of State Papers*. Foreign, II. 1558, p. 398.

Sir William Pickering very sore sick of this new burning ague. He has had four sore fits, and is brought very low, and in danger of his life if they continue as they have done[1]."

Here we have the same term "new sickness" and "new burning ague" as in the two English chronicles under the year before—the "strange and new sicknesses" which "took men and women in their heads," and the "strange agues and fevers." The very general prevalence in Southampton, Portsmouth and the Isle of Wight suggests influenza; the symptom of sweating described by Jones for his own case during that prevalence is in keeping with what we hear of the influenzas of the time from foreign writers, and so is the long and slow convalescence; the fact of one person having had four sore fits of "this new burning ague" is more like influenza than typhus.

The severe mortalities in the autumn of 1558 at Loughborough and Chester are put down to "plague," and they may, of course, have been circumscribed outbursts of the old bubo-plague. If, however, they were part of the general prevalence of hot or burning agues, which we may take to have been influenza or a very volatile kind of typhus, they would indicate a degree of fatality in the latter somewhat greater than more recent influenzas have had. A high death-rate is, indeed, demonstrable for the year 1558, from parish registers, by comparing the deaths in that year with the deaths in years near it, and by comparing the deaths with the births in 1558 itself.

The registers of christenings and burials, which had been ordered first in 1538, were kept in a number of parishes from that date; and from 1558, when the order for keeping them was renewed by queen Elizabeth, they were generally kept. Dr Thomas Short, a man of great industry, about the middle of last century obtained access to a large number of parish registers, and worked an infinite number of arithmetical exercises upon their figures[2]. His abstract results or conclusions are colourless and unimpressive, as statistical results are apt to be for the average concrete mind; nor can they be made to illustrate the

[1] *Calendar of State Papers.* Foreign, II. 1558, p. 400.

[2] *New Observations, Natural, Moral, Civil, Political and Medical, on City, Town and Country Bills of Mortality.* By Thomas Short, M.D., London, 1750.

epidemic history of Britain with the help of his companion volumes, 'A General Chronological History of the Air, Weather, Seasons, Meteors etc[1].', for these extraordinary annals are for the most part loosely compiled from foreign sources, bringing into one focus the most scattered references to disease in any part of Europe, and that too without criticism of authorities but often with surprising credulity and inaccuracy. That so much statistical or arithmetical zeal and exhaustiveness (in the work of 1750) should go with so total a deficiency of the critical and historical sense, (in the work of 1749) is noteworthy, and perhaps not unparalleled in modern times. Short's history is mostly foreign, but his statistics, which are English, may be used to illustrate and confirm what can be learned of sicknesses in England in the ordinary way of historical research.

Thus, the period from 1557 to 1560 stands out in Short's table as one of exceptional unhealthiness both in country parishes and in market towns, the unhealthiness being estimated by the excess of burials over christenings.

Country Parishes.

Year	Registers examined	Unhealthy Parishes	Baptised in same	Buried in same
1557	16	7	62	181
1558	26	11	171	340
1559	34	12	145	252
1560	38	6	100	162
1561	41	1	19	32

Market Towns.

Year	Registers examined	Unhealthy Towns	Baptised in same	Buried in same
1557	4	2	262	381
1558	4	2	104	159
1559	5	3	102	149
1560	8	3	134	201
1561	8	3	276	399
1562	8	1	58	71

Short's collection of parish registers appears to have represented many English counties, although there is no clue to their identity in the tables from which these figures are taken. The

[1] 2 vols. London, 1749.

heavy mortalities in the registers correspond exactly to the epidemic years as otherwise known, and may be said to bear witness to the extent or generality of the epidemic infection.

The next that we hear of malignant fevers in England is the outbreak at Oxford in 1577, following the Assizes. Anthony Wood says of it: "Some thought that this Oxford mortality was the same that Leonard Fuchsius styles sudor Anglicus." Cogan, a contemporary, says:

> "And certainly after that sudden bane at Oxford, the same year and a year or two following, the same kind of agues raged in a manner all over England, and took away very many of the strongest sort in their lustiest age, and for the most part men and not women nor children, culling them out here and there, even as you should choose the best sheep out of a flock. And certain remedy was none to be found....And they that took a moderate sweat at the beginning of their sickness, and did rid their stomachs well by vomit, sped much better."

This is partly confirmed by Short's abstracts of the parish registers. Thus in 1580, of sixty registers examined, ten showed unhealthiness, the births being to the deaths as 248 to 284. In 1582, seven country parishes were markedly unhealthy, the births being to the deaths as 140 to 244. In market towns the incidence is not so striking: in 1580, four towns out of sixteen examined showed an unhealthy birth-rate, 237 births to 276 deaths. It is in 1583 that the disparity becomes greatest in these towns: three out of the sixteen in the list were notably unhealthy, the deaths being 1062 and the births 467. But it is the obvious defect of Short's method that we have no means of knowing whether that mortality may not have been largely from plague, and not from fever or other form of epidemic sickness.

The only year between 1558 and 1580 in Short's tables, which stands out as decidedly unhealthy both in country parishes and market towns is 1570, while the years from 1573 to 1575 are less healthy than the average. Those were years of war, and of war-typhus, on the Continent, as the foreign writings show, but there are no records of the kind of sickness in England.

One glimpse of the prevalence of those fevers of 1580–82 is

got from a letter of the earl of Arundell to Lord Burghley, October 19, 1582. The earl had left his house in London because it was so "beset and encompassed" by plague; while, as to his country house: "The air of my house in Sussex is so corrupt even at this time of the year as, when I came away, I left xxiv sick of hot agues." He therefore begs the loan of the bishop of Chichester's house till such time as the vacancy in the see should be filled up[1].

The widespread volatile sicknesses of 1557–8 and 1580–2 which are grouped under the generic name of influenza, were related in time to great epidemics of the far more deadly bubo-plague. These plague outbursts were less noticeable in England than abroad. Thus in 1557 there were most disastrous epidemics of true bubo-plague in several towns of the Low Countries, and in 1580 there was at Cairo one of the worst epidemics in the whole history of plague from its beginning. The years preceding 1580 were also plague-years in many parts of Europe (Padua, Mantua, Venice, Messina, Palermo, Lisbon, Brussels). Those years were also the occasion of the first great and disastrous epidemics of diphtheria (*garottillo*) in Spain. Then come the epidemics of typhus; and at the far end of the pestilential scale the flying waves of influenza. A relation of influenza to other prevalent infections has been one of the theories of its nature, especially the relation to epidemics of Asiatic cholera.

In that view influenza looks as if it were a volatile product, a swifter and more superficial wave on the top of some slower and more deadly earth-borne virus. As the old writers said, it was a *levis corruptio aeris*, a diluted virus as it were, mild in proportion to its volatility and swiftness, but in universality equalling in its own milder way the universality of the plague of Justinian's reign or of the Black Death.

Now, the same century and the same state of society which witnessed the most remarkable of those flying ripples of infection over the whole surface of Europe witnessed also some waves of infection which did not travel so far, nor were mere influenzas. The English sweat travelled over England in that

[1] *Calendar of Cecil MSS.*, II. 525.

way; it was called the posting sweat, because it posted from town to town: thus in 1551 it suddenly appeared one day in Oxford, and next day it was in the villages around, as if carried in the air; in like manner it posted to Devonshire, to Leicestershire, to Cheshire, and doubtless all over England, like the influenzas of recent memory. And while the English sweat was thus flying about in England, influenza was flying about the same year (1551) in France, a country which never suffered from any of the five sweating sicknesses of 1485–1551. Again, the influenza in England in 1558 had the symptom of sweating so marked that it was compared to the true sweat of 1551 by Dr Jones, who himself suffered from it. Also the influenza of 1580 all over Europe had so much of a sweating character that in some places they said the English sweat had come back. Lastly, the gaol-fever of Oxford in 1577 was thought by some to present the symptoms described by Leonard Fuchs for *sudor Anglicus;* and Cogan, an English medical writer then living, specially mentions the phenomenon of sweating (as well as the intestinal profluvium called a "lask)," both at Oxford and in the more widely prevalent diseases of that year and the years following. The gaol-fever of Exeter in 1586 illustrates still another side of the question; it diffused itself—probably by other means than contact with the sick—all over the county of Devon, and had not ceased six months after it began in the month of March at Exeter. The Devonshire diffusion was like the spreading circles in a still pool. The spread of influenza was like the flying ripples on a broad surface of water. The spread of plague, on the occasions when it was universal, was like the massive rollers of the depths, the onward march of cholera from the East having, in our own times, illustrated afresh the same momentum.

In using hitherto the name of influenza for the universal fevers in England in 1557–58 and in 1580–82, I have done so because those years are usually reckoned in the annals of influenza. But the name is at best a generic one, and need not commit us to any nosological definition. I shall have to deal at more length with this question in the tenth chapter, when speaking of the fevers of 1657–59 described by Willis and

Whitmore, two competent medical observers; in those years the vernal fever was a catarrhal fever, or influenza proper, while the fever of the hot and dry season, autumnal or harvest-fever, was a pestilential fever, a spotted fever, a burning ague, a contagious malignant fever. There were also differences in their epidemological as well as in their clinical characters, the influenza wave being soonest past. But so far as regarded universality of diffusion and generality of incidence, both types were much alike.

Molineux, writing in 1694, a generation after Willis, "On the late general coughs and colds," brought into comparison with them another epidemic which he had observed in Dublin in the month of July, 1688: "The transient fever of 1688...I look upon to have been the most universal fever, as this [1693] the most universal cold, that has ever appeared[1]."

When we come to the 18th century, to great epidemics not only in connexion with famine in Ireland, but also in England, we shall find the same diffusiveness associated with the clear type of disease which we now call typhus. Influenza is the only sickness familiar to ourselves which shows the volatile character, and we are apt to conclude that no other type of fever ever had that character. But, without going farther back than the 18th century we shall find epidemics of spotted typhus resting like an atmosphere of infection over whole tracts of Britain and Ireland, town and country alike; and even if we give the name of influenza to the epidemical "hot agues" with which we are here immediately concerned, in the years 1540, 1557–8, and 1580–82, we may also regard them as in a manner corresponding to, if not as embracing, the types of fever that prevailed from time to time over wide districts of country in the centuries following.

The term "ague," often used at the time, is no more decisive for the nosological character than the term "influenza." Ague originally meant a sharp fever (*febris acuta*, ὄξυς), and in Ireland, from the time of Giraldus Cambrensis down to the 18th century, it meant the acute fever of the country, which

[1] *Phil. Trans.* XVIII. 105.

has not been malarial ague, in historical times at least, but typhus. "Irish ague" was in later times a well-understood term for contagious pestilential fever or typhus. In the *Dyall of Agues* by Dr John Jones (1564?), just as in the writings of Sydenham a century later, intermittents were mixed up with continued fevers which had nothing malarial in their cause or circumstances. Thus, Jones has a chapter on "Hot Rotten Agues," which he identifies with the synochus or continued fever of the Greeks; in another chapter on "The Continual Rotten Ague," he locates the continued fevers within the vessels and the "interpolate" without their walls, and proceeds:

"It happeneth where all the vessels, but most chiefly in the greatest which are annexed about the flaps of the lungs and spiritual members, all equally putrefying, which often happeneth, as Fuchsius witnesseth, of vehement binding and retaining the filth in the cavity or hollowness of the vessels, inducing a burning heat. Wherefore, this kind of fever chanceth not to lean persons, nor to such as be of a thin constitution and cold temperament, nor an old age (that ever I saw), but often in them which abound with blood and of sanguine complexion, replenished with humour, fat and corpulent, solemners of Bacchus' feasts,—gorge upon gorge, quaff upon quaff—not altogether with meat or drink of good nourishment but of omnium gatherum, as well to the destruction of themselves as uncurable to the physician, as by my prediction came to pass (besides others) upon a gentleman of Suffolk, a little from Ipswich, who by the causes aforesaid got his sickness, and thereof died the ninth day, according to my prediction, as his wife and friend knoweth."

Again, in his eighth chapter, "Of the Pestilential Fever, or Plague, or Boche [Botch]," he remarks upon the varying types of pestilential diseases, mentioning among other national types the English sweat:

"As we, not out of mind past, with a sweat called stoupe galante, as that worthy Doctor Caius hath written at large in his book *De Ephemera Britannica*," adding the remark that here concerns us:—"and sethence [since then], with many pestilential agues, and, lastly of all, with the pestilential boche [botch or plague rightly termed]." These continued fevers, pestilential agues, or hot rotten agues, Jones distinguishes from quotidians, tertians and quartans. Of the last he says: "and when quartans reign everywhere, as they did of no long years past; of the which then I tasted part, besides my experience had of others,"—probably the fevers of 1558, elsewhere called by him the sweating sickness, and by Stow called "quartan agues." He mentions also quintains, which he had never seen in England,

"but yet in Ireland, at a place called Carlow, I was informed by Mr Brian Jones, then there captain, of a kerne or gentleman there that had the quintain long."

Not only the term "ague," but also the terms "intermittent," "tertian," and more especially "quartan," can hardly be taken in their modern sense as restricted to malarial or climatic fevers. An intermittent or paroxysmal character of fevers was made out on various grounds, to suit the traditional Galenic or Greek teaching; but the paroxysms and intermissions were not associated specially with rise and fall of the body-temperature. The curious history of agues, and of the specialist ague-curers, properly belongs to the time of the Restoration, when Peruvian bark came into vogue, and will be fully dealt with in the first chapter of another volume.

The last years in the Tudor period that stand out conspicuously in the parish registers for a high mortality, not due to plague, are 1597–8. The year 1597 was a season of influenza in Italy, and perhaps elsewhere in Europe; so that the epidemic in England that year may have been the same, but more probably was famine-fever. In the parish register of Cranbrooke the deaths for the year are 222, against 56 births; and 181 of the deaths are marked with the mark which is supposed to mean plague proper. The register of Tiverton has 277 deaths, against 66 births, but it is almost certain that the cause of the excess was not plague, of which the nearest epidemic in that town was in 1591. In a country parish of Hampshire, with a population of some 2700, the deaths in 1597 were 117, against 48 births, the mortality being about twice as great as in any year from the commencement of the register in 1569, and after until 1612[1]. In the north of England the type of disease in 1597–8 was plague proper.

The parish register of Finchley has a remarkable entry under the year 1596 which introduces us to other considerations: "Hoc anno moriebantur de dysenteria xix," the whole number of burials for the year having been 28. Next year, 1597, there are 23 deaths from dysentery, the burials in all having been 48—an enormous mortality compared with the average of the parish.

[1] Graunt, *Reflections on the Bills of Mortality*, 3rd ed. 1665.

The year 1597, if not also 1596, was a year of great scarcity, apparently all over England; in Northumberland, Durham, and Cumberland, the scarcity was attended by plague proper; but in other parts of England, it would seem, by other types of sickness, of which dysentery was one.

One of the 16th century English names used for flux was the obsolete word lask, which occurs often enough in writings of the period to suggest that the malady was common; it is sometimes called a choleric lask (cholera morbus), or a vehement lask, as in Elyot's *Castel of Health* and in Cogan's *Haven of Health*. Lasks, or lienteries, or dysenteries have not been dealt with in a chapter by themselves because the records of them are too few and meagre, so far as we have gone in the history; but it may be convenient to bring together here the better known instances. In the period of famine-sicknesses, dysentery and lientery must have been common types, the latter being specially mentioned by Rishanger of St Albans for the year 1294. Trokelowe, another St Albans chronicler, writing of the famine-sickness of 1315–16, uses the singular phrase "morbus enim dysentericus ex corruptis cibis fere omnes maculavit" and says it was followed by "acuta febris vel pestis gutturuosa." Dysentery from corrupt food is again specially named for the year 1391. The "wame-ill" was the prevalent type of sickness in the great Scots famine of 1439, a year of famine in England and France. When we next hear of it in English history it is among the troops of the marquis of Dorset in Gascony and Biscay in 1512, some 1800 of them having died of "the flix." Then comes the "great lask throughout the realm" in 1540, associated with "strange fevers." The sickly years 1557–58 and 1580–82 had probably some dysentery, or lientery, either as primary maladies or as complications of the fevers: Cogan's generalities imply as much for 1580–82, and we know that the corresponding sickly period a century after (1657–59) was so characterised in the description by Willis. The fatal infection in the fleet after the defeat of the Spanish Armada, in August, 1588, was probably dysentery and ship-fever. Many other instances of the kind remain to be given in the chapter on the sicknesses of voyages and colonial settlements.

Dysentery begins to be heard of more frequently in the Stuart period, as a malady of London. It is a prominent item, along with summer diarrhoea, in the London bills of mortality from the year 1658, under the name "griping of the guts," and is occasionally mentioned in letters from London about the same years. The dysentery of London in 1669 was the subject of Sydenham's observations, who says that it had been rarely seen in the preceding ten years[1]. On the other hand he speaks of "the endemic dysentery of Ireland," although he is not sure as to its type or species[2]. Statements as to the Irish "country disease," are as old as Giraldus Cambrensis[3]; but as the whole question of dysentery is intimately bound up with that of typhus-fever, I shall reserve consideration of its prevalence in Ireland on the great scale, as well as of the annual mortality from it in the London bills of the 17th century, until that section of the work in which fevers and the maladies akin to them come into the first rank as if in lieu of the plague.

[1] *Opera*, ed. Greenhill, p. 160. [2] *Ibid.* p. 169.

[3] Giraldus Cambrensis, Rolls series, No. 21, vol. v. *Topogr. Hiberniae*, p. 67:— "Advenarum, tamen, una hic fere est passio et unica vexatio. Ob humida namque nutrimenta, immoderatum ventris fluxum vix in primis ullus evadit." Flux among the English troops in Ireland in 1172 is mentioned by Radulphus de Diceto, *Imag. Histor.* I. 348.

NOTE. A sweating character in the "hot agues" or fevers of the Elizabethan period, in those of 1580–82 as well as in those of 1557–58, is asserted in several passages in the text. It is noteworthy that in *Measure for Measure*, one of Shakespeare's early comedies, the bawd says: "Thus, what with the war, what with the sweat, what with the gallows, and what with poverty, I am custom-shrunk" (Act I. Scene 2).

CHAPTER VIII.

THE FRENCH POX.

ONE great epidemic disease of the first Tudor reigns, which brought consternation and distress to multitudes, makes hardly any appearance in the English records of the time, and no appearance at all in the writings of the English profession. Long after, in 1576, William Clowes, surgeon to St Bartholomew's Hospital, first broke the professional silence about *lues venerea* in England, and in his larger work of 1579 he gave a number of startling facts and figures of its then prevalence in London. But the great epidemic outburst of that disease in Europe began in the last years of the 15th century; its ravages on the epidemic scale are supposed to have lasted for twenty or thirty years from 1494; and its subsequent prevalence is assumed, not without reason, to have been of a milder type and within narrower limits. We hear of it, in England, from the political side, at the time when popular arguments were wanted against the Romish mass-priests and against the monasteries and the orders of friars. In the practical reasoning of Englishmen the scandalous lives of priests, monks and friars made the strongest argument for the policy which the king had adopted towards Rome; and it so happened in those very years that a scandalous life was betrayed, and made odious in more than sentiment, by bearing an outward and visible sign. The epidemic of *morbus Gallicus* arose at an unfortunate time for the pretensions of Rome, or, perhaps, it was itself part of the march of events. In Simon Fish's *Supplication of Beggars*,

which was compiled in 1524 and was read to Henry VIII. shortly after, the weightiest plea is the charge of scandalous conduct resting upon the priests. In the inquisitions which preceded the suppression of the monasteries, the same plea is, justly or unjustly, brought to the front in the case of one abbey after another. So close did the association of a scandalous vice and its attendant disease become with the priesthood that James I., writing long after concerning the sentiments of his mother, Mary the queen of Scots, represents her as forbidding the archbishop "to use the spittle" in his own baptism, for the reason that she would not have "a pokie priest to spet in her child's mouth[1]." These, says king James, were "her owne very words;" at all events, "a pocky priest" may be accepted as a phrase of the time. The fact that the epidemic of syphilis in England was used to discredit Romish priests is one of the few indications that we have of its existence in this country. Wide and deep as the commotion must have been which it caused, it found hardly any more permanent expression than the private talk of the men of those days. It was otherwise on the Continent. There, indeed, a copious literature sprang up, of which some thirty works remain, from the essay of Conrad Schellig of Heidelberg, printed without date or place, but ascribed to the year 1494 or 1495, down to the elaborate survey of the disease by Nicolas Massa of Venice in 1532. The single work extant in England from that, the earliest and greatest, period of the disease, is a poor piece of manuscript in the Sloane collection, translated from some foreign author, and entitled, "The tretese of the pokkis: and the cure by the nobull counsell of parris[2]." One of its cases is that of a man, aged forty, with two broad and deep, corroding and painful sores on his leg; another is of a bishop of Toledo, who had "pustules" and nocturnal pains "as if the bones would part from the flesh." The vague meaning of the term pox is shown in one phrase, "paynes, viz. aches and pokkis."

[1] *Works of James I.*, p. 301.

[2] *Sloane MS.* (Brit. Mus.) No. 389, folios 147–153. It bears no date, but is marked in the catalogue "xv and xvi cent.," as if belonging either to the end of the fifteenth century or the beginning of the sixteenth.

It was nothing unusual abroad to give cases, and to authenticate them with the names of the sufferers. Thus Peter Pinctor, physician to the pope Alexander Borgia, in a notorious but exceedingly scarce work published in 1500, enters fully into the truly piteous case of the cardinal bishop of Segovia, major-domo of the Vatican, "qui hunc morbum patiebatur cum terribilibus et fortissimis doloribus, qui die ac nocte, praecipue in lecto, quiescere nec dormire poterat," as well as into the case of Peter Borgia, the pope's nephew, "in quo virulentia materiae pustularum capitis corrosionem in pellicaneo [pericranio] et in craneo capitis sui manifeste fecit[1]."

Contrasted with the copious writing and recording of cases abroad, the English silence is remarkable. The origin of our first printed book on the subject is characteristic. A literary hack of the time, one Paynel, a canon of Merton Abbey, had translated, among other things, the *Regimen Salernitanum*, a popular guide to health several hundred years old. Going one day into the city to see the printer about a new edition, he was asked by the latter to translate the essay on the cure of the French pox by means of guaiacum (or the West-Indian wood) "written by that great clerke of Almayne, Ulrich Hütten, knyght." For, said the printer, "almost into every part of this realme this most foul and peynfull disease is crept, and many soore infected therewith." Ulrich von Hütten's personal experience of the guaiacum cure was accordingly translated from the Latin, in 1533, and proved a good venture for the printer, several editions having been called for[2]. The translation has no notes, and throws no light on English experience. It is not until 1579, when Clowes published his essay on the morbus

[1] Hensler, who reproduced in 1783 (*Geschichte der Lustseuche*, App. p. 53) these and other particulars from one of the two remaining copies of Pinctor's work (in the possession of Professor Cotunni of Naples), collated with the other copy in the Garelli library at Vienna, finds in the concluding dedication of the book to Alexander Borgia a sinister meaning, as if the supreme pontiff had been himself a victim of the *grande maladie à la mode;* it is easier, he says, to extricate the sense than the syntax of the passage.

[2] There was another edition in 1539, and several more following. Paynel also added a short section, "A Remedy for the Frenche pockes," to his book entitled, *A Moche Profitable Treatise against the Pestilence*. Translated into English by Thomas Paynel, chanon of Martin [Merton] Abbey, London, 1534.

Gallicus, that we obtain any light from the faculty upon the prevalence of the malady in England. Meanwhile it remains for us to collect what scraps of evidence may exist, in one place or another, of this country's share in the original epidemic invasion during the last years of the 15th century.

Earliest Notices of the French Pox in Scotland and England.

The first authentic news of it comes from the Council Register of the borough of Aberdeen under the date 21st April, 1497[1]:—

"The said day, it was statut and ordanit be the alderman and consale for the eschevin of the infirmitey cumm out of Franche and strang partis, that all licht weman be chargit and ordaint to decist fra thar vicis and syne of venerie, and all thair buthis and houssis skalit, and thai to pas and wirk for thar sustentacioun, under the payne of ane key of het yrne one thar chekis, and banysene of the towne."

The next news of it is also from Scotland, from the minutes of the town council of Edinburgh, wherein is entered a proclamation of James IV., dated 22 September, 1497[2]:—

"It is our Soverane Lords Will and the Command of the Lordis of his Counsale send to the Provest and Baillies within this bur[t] that this Proclamation followand be put till execution for the eschewing of the greit appearand danger of the Infection of his Leiges fra this contagious sickness callit the *Grandgor* and the greit uther Skayth that may occur to his Leiges and Inhabitans within this bur[t]; that is to say, we charge straitly and commands be the Authority above writtin, that all manner of personis being within the freedom of this bur[t] quilks are infectit, or hes been infectit, uncurit, with this said contagious plage callit the *Grandgor*, devoyd, red and pass fur[t] of this Town, and compeir upon the sandis of Leith at ten hours before none, and their sall thai have and fynd Botis reddie in the havin ordanit to them be the Officeris of this bur[t], reddely furneist with victuals, to

[1] *Extracts from the Council Register of the Burgh of Aberdeen*, 1398–1570. Edited for the Spalding Club [by Dr John Stuart], vol. i. 1844, p. 425.

[2] *Phil. Trans.*, vol. 42 (1743), p. 420: "Part of a Letter from Mr Macky, professor of History, to Mr Mac Laurin, professor of Mathematics in the University of Edinburgh, and by him communicated to the President of the Royal Society; being an Extract from the Books of the Town Council of Edinburgh, relating to a Disease there, supposed to be Venereal, in the year 1497."

have thame to the *Inche* [the island of Inch Keith in the Firth of Forth], and thair to remane quhill God proviyd for thair Health: And that all uther personis the quilks taks upon thame to hale the said contagious infirmitie and taks the cure thairof, that they devoyd and pass with thame, sua that nane of thair personis quhilks taks sic cure upon thame use the samyn cure within this burt in pns nor peirt any manner of way. And wha sa be is foundin infectit and not passand to the *Inche*, as said is, be *Monon-day* at the Sone ganging to, and in lykways the said personis that takis the sd Cure of sanitie upon thame gif they will use the samyn, thai and ilk ane of thame salle be brynt on the cheik with the marking Irne that thai may be kennit in tym to cum, and thairafter gif any of tham remains, that thai sall be banist but favors[1]."

Sir James Simpson, with his indefatigable research over antiquarian points[2], has brought together evidence of payments from the king's purse to persons infected with the "Grantgore" at Dalry, Ayrshire, in September, 1497, at Linlithgow on 2nd October, 1497, at Stirling on the 21st February, 1498 ("at the tounne end of Strivelin to the seke folk in the grantgore"), at Glasgow (also "at the tounn end") on 22nd February, 1498, and again at Linlithgow, 11th April, 1498. He quotes also from a poem of William Dunbar, written soon after 1500, on the conduct of the Queen's men on Fastern's e'en, the terms "pockis" and "Spanyie pockis." From Sir David Lyndsay's poems, of much later date, and from other references, he makes out that "grandgore" or "glengore" was the usual name in Scotland down to the 17th century. Grandgore means *à la grande gorre*, which is the same as *à la grande mode*. This name was given for a time in France to the great disease of the day, but it was soon superseded by *vérole*. Scotland is the only country where "grandgore" became established as the common name of the pox.

Before leaving the Scots evidence, two other ordinances may

[1] Simpson (*l. c.*) quotes the Proclamation from the original minute-book, almost in the above spelling; it is in Vol. I. of the *Town Council Records*, fol. 33–34, and is entitled in the rubric "Ane Grangore Act."

[2] "On Syphilis in Scotland in the Fifteenth Century," *Trans. Epidem. Soc.* N. S. I. (1862), p. 149. Two of the entries are published in the *Criminal Trials of Scotland*, I. 117; the others were collected for Simpson by Mr Joseph Robertson from the High-Treasurer's Accounts in the Register House, Edinburgh. These accounts have since been published in the Rolls series (vol. I. 356, 361, 378 (*bis*), 386).

be quoted from the town council records of Aberdeen. In a long list of regulations under date the 8th October, 1507, there occur these two[1]:—

"Item, that diligent inquisitioun be takin of all infect personis with this strange seiknes of Nappillis, for the sauetie of the town; and the personis beand infectit therwith be chargit to keip thame in ther howssis and uther places, fra the haile folkis."

"Item, that nayne infectit folkis with the seiknes of Napillis be haldin at the common fleschouss, or with the fleschouris, baxteris, brousteris, ladinaris, for sauete of the toun, and the personis infectit sall keip thame quyat in thar housis, zhardis, or uther comat placis, quhill thai be haill for the infectioun of the nichtbouris."

"Sickness of Naples" is a reference to the well-known diffusion of the disease all over Europe by the mercenaries of Charles VIII. of France, dispersing after the Italian war and the occupation of Naples.

For England the first known mention of the pox is several years later than the Scots references, although that proves nothing as to its actual beginning in epidemic form. In the book of the Privy Purse Expenses of Elizabeth of York, queen of Henry VII., there is an entry under the date of March 15, 1503, of a sum of forty shillings paid on behalf of John Pertriche "oon of the sonnes of mad Beale;" which sum appears to have been what the youth cost her majesty for board, clothes, education, and incidental expenses, during the year past. The various items making up the sum of forty shillings are: his diets "for a year ending Christmas last past," a cloth gown, a fustian coat, shirts, shoes and hose, "item, for his learning, 20*d.* item for a prymer and saulter 20*d.* And payed to a surgeon which heled him of the Frenche pox 20*s.* Sm^{a} 40*s.*" It will be observed that the surgeon's bill was as much as all his other expenses for the year together[2].

The London chronicler of the time is alderman Robert Fabyan; but although Fabyan, writing in the first years of the 16th century, uses the word "pockys" to designate an illness of

[1] *Op. cit.* I. 437.

[2] *Privy Purse Expenses of Elizabeth of York.* Edited by Nicolas, London, 1830, p. 104.

Edward IV. during a military excursion to the Scots Marches in 1463, or long before the epidemic invasion from the south of Europe, he says nothing of that great event itself. There is a record, however, of one significant measure taken in the year 1506, the suppression of the stews on the Bankside in Southwark. These resorts were of ancient date, and for long paid toll to the bishop of Winchester. In 1506 there were eighteen of them in a row along the Surrey side of the river, a little above London Bridge; they were wooden erections, each with a stair down to the water, and each with its river front painted with a sign like a tavern, such as the Boar's Head, the Cross Keys, the Gun, the Castle, the Crane, the Cardinal's Hat, the Bell, the Swan, etc. These houses, says Stow, were inhibited in the year 1506, and the doors closed up; but it was not long ere they were set open again, the number being at the same time restricted to twelve[1]. They had been suppressed once before, at the earnest demand of the citizens, in the reign of Henry IV., and it appears from a sermon of Latimer's that they were again suppressed about the year 1546. Thus Shakespeare had several precedents in London for the situation which he creates in a foreign city, in *Measure for Measure*.

The next reference that I find to it is an oblique one, by Bernard André in his *Annals of Henry VII.* On the occasion of mentioning the sweating sickness of 1508, he says the latter disease occurred first in England about four-and-twenty years before, and that it was "followed by a far more detestable malady, to be abhorred as much as leprosy, a wasting pox which still vexes many eminent men" (multos adhuc vexat egregios alioquin viros tabifica lues[2]"). Bernard André's association of the pox with the sweating sickness, as of one new disease following another, is in the same manner as the reference to it by Erasmus. In a letter from Basle, in August, 1525, to Schiedlowitz, chancellor of Poland, he discourses upon the sickliness of seasons

[1] Stow's *Survey of London*, "Bridge Ward Without." He ascribes these informations to "Robert Fabian," both in the text and in the margin. The statement is certainly not made in Fabyan's *Chronicle of England* under the year 1506, or other year of the decade, nor is it indexed as occurring in some earlier connexion.

[2] Bernard André's Works. Rolls series, No. 10.

and the mutations of diseases[1]: Until thirty years ago England was unacquainted with the sweat, nor did that malady go beyond the bounds of the island. In their own experience they had seen mutations:—"nunc pestilentiae, nunc anginae, nunc tusses; sed morbum morbus, velut ansam ansa trahit; nec facilé cedunt ubi semel incubuere." He then proceeds:

"But if one were to seek among the diseases of the body for that which ought to be awarded the first place, it seems to my judgment that it is due to that evil, of uncertain origin, which has now been for so many years raging with impunity in all countries of the world, but has not yet found a definite name. Most persons call it the French pox (*Poscas Gallicas*), some the Spanish. What sickness has ever traversed every part of Europe, Africa and Asia with equal speed? What clings more tenaciously, what repels more vigorously the art and care of physicians? What passes more easily by contagion to another? What brings more cruel tortures? Vitiligo and lichens are deformities of the skin, but they are curable. This lues, however, is a foul, cruel, contagious disease, dangerous to life, apt to remain in the system and to break out anew not otherwise than the gout."

Whether it was from some mistaken theory of contagiousness or for other reasons, a fellow of Merton was ordered to leave in 1511 because he had the French pox[2]. In the English history nothing appears above the surface until the beginning of the movement against the papal supremacy and in favour of Reformation. That was a time of public accusations of all kinds, and among the rest of opprobrious references to the pox. In Simon Fish's *Supplication of Beggars*[3], which was written in 1524, certain priests are thus hyperbolically spoken of:

"These be they that have made an hundred thousande ydel hores in your realme, which wold have gotten theyr lyvinge honestly in the swete of their faces had not there superfluous riches illected them to uncleane lust and ydelnesse. These be they that corrupte the hole generation of mankynd in your realme, that catch the pockes of one woman and beare it to another, ye some one of them will boste amonge his felowes that he hath medled with an hundreth wymen."

[1] *Erasmi Epistolae*, folio. London, 1642, p. 1789 e.

[2] Anthony Wood, *Hist. Univ. Oxford*, ed. Gutch, I. 514. Freind (*Hist. of Physic*, Pt. II. p. 345) says that the French pox is mentioned in the will of Colet, dean of St Paul's, 1518.

[3] *The Supplication of Beggers* compyled by Symon Fyshe. Anno MCCCCCXXIIII. Lond. 1546.

In the year 1529, there is a more painful and most undignified charge. In the Articles of Arraignment of Wolsey in the House of Peers, the sixth charge is:

"The same Lord Cardinall, knowing himself to have the foul and contagious disease of the great pox, broken out upon him in divers places of his body, came daily to your Grace [the King], rowning in your ear, and blowing upon your most noble Grace with his perilous and infective breath, to the marvellous danger of your Highness, if God of his infinite goodness had not better provided for your Highness. And when he was once healed of them, he made your Grace believe that his disease was an impostume in his head, and of none other thing[1]."

Among the glimpses of contemporary manners in Bullein's *Dialogue of the Fever Pestilence* (1564), there is one referring to the pox; Roger, the groom, soliloquizes thus: "her first husband was prentice with James Elles, and of him learned to play at the short-knife and the horn thimble. But these dog-tricks will bring one to the poxe, the gallows, or to the devil[2]." Bullein, in his more systematic handbook to health, promises to treat of the pox fully, but omits to do so. In one place he refers to the wounds of a young man who fell into a deep coal-pit at Newcastle as having been healed "by an auncient practisour called Mighel, a Frencheman, whiche also is cunnynge to helpe his owne countrey disease that now is to commonly knowen here in England, the more to be lamented: But yet dayly increased, whereof I entinde to speake in the place of the Poxe." But the only other reference is (in the section on the "Use of Sicke Men and Medicine,") to certain drugs "which have vertue to cleanse scabbes, iche, pox. I saie the pox, as by experience we se there is no better remedy than sweatyng and the drinkyng of guaiacum," etc[3].

A good instance of the oblique mode of reference to the malady occurs in another dialogue by a surgeon, Thomas Gale[4].

[1] *Parliamentary History*, I. 494.

[2] Bullein's *Dialogue of the Fever Pestilence*, 1564. Early English Text Society, Extra series, 1888, p. 122.

[3] Bullein's *Bulwarke of Defence against all Sicknes, Sornes, and Woundes*, etc., 1562, foll. 2, 68.

[4] *Certain Works of Chirurgerie newly compiled and published by T. Gale.* London, 1563.

The pupil who is being instructed tables the subject of "the morbus," which he farther speaks of as "a great scabbe;" whereupon Gale pointedly takes him to task for the affectation of "the morbus;" any disease, he says, is the morbus; what you mean is the morbus Gallicus.

About the same date, 1563, a casual reference is made to the wide prevalence of the pox by John Jones in his *Dyall of Agues*. In illustration of the fact that various countries originate different forms of pestilence, as the Egyptians the leprosy, the Attics the joint-ache, the Arabians swellings of the throat and flanks, and the English the sweating sickness, he instances farther, "the Neapolitans, or rather the besiegers of Naples, with the pockes, spread hence to far abroad through all the parts of Europe, no kingdom that I have been in free—the more pity[1]."

English Writings on the Pox in the 16th Century.

The first original English writer on the pox was William Clowes. In his treatise[2] of 1579, dedicated to the Society of the Barbers and Chirurgions, he says that he had been bold "three years since to offer unto you a very small and imperfect treatise of mine touching the cure of the disease called in Latine *Morbus Gallicus*, the which, forasmuch as it was at that time rather wrested from me by the importunitye of some of my frendes, upon certain occasions then moving, than willingly of my selfe published, it passed out of my handes so sodeinly and with so small overlooking or correction," that he now in 1579 reissues it in a revised and corrected form.

"The Morbus Gallicus or Morbus Neapolitanus, but more properly Lues Venera, that is the pestilent infection of filthy lust, and termed for the most part in English the French Pocks, a sicknes very lothsome, odious, troublesome and daungerous, which spreadeth itself throughout all England and overfloweth as I thinke the whole world." He then characterises the vice "that is the original cause of this infection, that breedeth it, that nurseth it,

[1] *Dyall of Agues*, cap. VIII. "Of the Pestilential fever, or plage, or boche."

[2] William Clowes, *A short and profitable Treatise touching the cure of the disease called (Morbus Gallicus) by unctions*, London, 1579.

that disperseth it." In the cure of the malady he has had some reasonable experience, and no small practice for many years. According to the following passage, St Bartholomew's Hospital, to which Clowes was surgeon, was three parts occupied by patients suffering from this malady:—

"It is wonderfull to consider how huge multitudes there be of such as be infected with it, and that dayly increase, to the great daunger of the common wealth, and the stayne of the whole nation: the cause whereof I see none so great as the licentious and beastly disorder of a great number of rogues and vagabondes: The filthye lyfe of many lewd and idell persons, both men and women, about the citye of London, and the great number of lewd alehouses, which are the very nests and harbourers of such filthy creatures; By meanes of which disordered persons some other of better disposition are many tymes infected, and many more lyke to be, except there be some speedy remedy provided for the same. I may speake boldely, because I speake truely: and yet I speake it with very griefe of hart. In the Hospitall of Saint Bartholomew in London, there hath bene cured of this disease by me, and three (3) others, within this fyve yeares, to the number of one thousand and more. I speake nothing of Saint Thomas Hospital and other howses about this Citye, wherein an infinite multitude are dayly in cure....For it hapneth in the house of Saint Bartholomew very seldome but that among every twentye diseased persons that are taken in, fiftene of them have the pocks." Like the earlier writers on the Continent he recognizes that the disease is communicated in more ways than one; he speaks of "good poor people that be infected by unwary eating or drinking or keeping company with those lewd beasts, and which either for shame will not bewray it, or for lack of good chirurgions know not how to remedy it, or for lâck of ability are not able otherwise to provide for the cure of it."

In so far as Clowes follows his own experience, he is under no illusion as to the nature and circumstances of the French pox. But he goes on to append a pathology of the disease, which is taken from foreign writers and reflects the bewilderment of the faculty over the constitutional effects of the malady. As Erasmus said, in the letter quoted, it went all through the body, "not otherwise than the gout." When it was first observed, it appeared to be constitutional from the outset. More particularly it covered the skin with "pustules" or "whelks" as if it had been a primary eruption like variola, to which it was compared; hence the names "great pox" and "small pox." It was not until long after that our present pathology of primary, secondary and tertiary effects was worked out; in the earliest writings the constitutional effects were referred to an "inward cause," as Clowes says, to some idiopathic corruption of the humours

having the liver for their place of elaboration, or *minera morbi.* Thus the learned explanation of the malady, which Clowes adopts from foreign writers more skilled than himself in such disquisitions, has no organic unity with his own common-sense observations. In his *Proved Practice* he defers still farther to the academical view, as given in the treatise of John Almenar, a Spanish physician[1].

Although Clowes, in 1579, testifies to the very wide prevalence of the disease, to so great an extent, indeed, that it occupied the hospitals more than all other diseases put together, yet there is reason to think that it had by that time lost the terrible severity of its original epidemic type. The usual statement is that the disease abated both in extent and in intensity within twenty or thirty years of the Italian outbreak among the soldiery in 1494–96. A contemporary and ally of Clowes, John Read, of Gloucester, published in 1588 a volume of translations, from the Latin manuscript of the English surgeon of the 14th century, John Ardern, on the cure of fistulas, and from the treatise on wounds, etc. by the Spanish surgeon Arcaeus (Antwerp, 1574)[2]. In the latter he finds the following passage, which seems to describe the *morbus Gallicus* on its first appearance:—

"The French disease did bring with it a kind of universal skabbe, oftentimes with ring wormes, with the foulness of all the body called vitiligo and alopecia, running sores in the head called acores, and werts of both sortes, and many times with flegmatic or melancholic swellings or ulcers corrosive, filthie and cancrouse, and also running over the body, together with putrifying of the bone, and many times also accompanied with all kind of grief, with fevers, consumptions, and with many other differences of diseases."

Read's own remarks draw an explicit contrast between the disease on its first appearance and in his own later experience. Everyone knows now, he says, how to treat the French pox,

[1] 'A Prooved Practice for all young Chirurgeons, concerning burning with gunpowder, and woundes made with Gunshot, Sword, Halbard, Pike, Launce or such other. Hereto is adjoyned a Treatise of the French or Spanish Pocks, written by John Almenar, a Spanish Phisician. Also a commodious collection of Aphorismes, both English and Latine, taken out of an old written coppy. Published for the benefit of his country by William Clowes, Maister in Chirurgery.' New ed., 1591.

[2] *A most excellent and compendious Method*, etc. London, 1588.

"the disease daylie dying and wearing away by the exquisite cure thereof"—which may be taken to mean, at least, a notable mitigation of the constitutional effects[1]. The treatment, however, must have been much less effective then than now. Clowes speaks of a class who "either for shame will not bewray it, or for lack of good chirurgions know not how to remedy it, or for lack of ability are not able otherwise to provide for the cure of it." The expense of a cure would have been considerable, to judge by the case given above from an account-book of the year 1503. Unable to employ "good chirurgions," the poorer class would resort to quacks, of whose practice, in that and other diseases, we have some glimpses both from Clowes in London and from Read in Gloucester and Bristol. Of one irregular practitioner Clowes says, "He did compound for fifteen pound to rid him within three fits of his ague, and to make him as whole as a fish of all diseases." There was still a lower order of empirics, whom Clowes disdained to contend with:

"Yet I do not mean to speak of the old woman at Newington, beyond St George's Fields, unto whom the people do resort as unto an oracle; neither will I speak of the woman on the Bankside, who is as cunning as the horse at the Cross Keys; nor yet of the cunning woman in Seacole Lane, who hath more skill in her cole-basket than judgment in urine, or knowledge in physic or surgery"—nor of many others who are compared to "moths in clothes," to "canker," and to "rust in iron."

Read gives an account of a travelling mountebank, which is too graphic to be omitted:

"In this year, 1587, there came a Fleming into the city of Glocester named Woolfgange Frolicke, and there hanging forth his pictures, his flags, his instruments, and his letters of mart with long lybells, great tossells, broad scales closed in boxes, with such counterfeit shows and knacks of knavery, cozening the people of their money, without either learning or knowledge. And yet for money got him a licence to practise at Bristow. But when he came to Gloceter, and being called before some being in authority by myself and others, he was not able to answer to any one point

[1] Read uses, among other terms, one that has played a great part in the modern pathology of syphilis. Among the points to be noticed are,—"if recent or old, if the ulcers or whelks be many, whether pustulous matter or *gummie* substance appear."

in chirurgerie; which being perceived, and the man known, the matter was excused by way of charity, to be good to straungers."

One of the most systematic and detailed surgical treatises of the time, John Banister's book on the "general and particular curation of ulcers" (1575), is significant for the indirect way in which it refers to the lues venerea.

Thus at folio 25, "the malignant ulcer called cacoethes" is described without anything said of a venereal origin, but the specific guaiacum is given among the remedies. The same is the case on the 31st and 32nd leaves, which treat of "filthie and putrefied ulcers," guaiacum being again prescribed. At folio 51, on ulcers of the mouth, it is said, "If it proceed a morbo venereo, then first begin with due purgation, and prescribe the party a thin diet with the decoction of guaiacum, and use ointments requisite for that disease, strengthening the inner parts. Use twice a day a sublimated water, as is afore written, to touch the ulcer with lint rolled therein:

Rec. Aqua Rosar. & Plantag. } an. two ounces,
Sublimati i dragme.

Boil them in a glass bottel till the sublimate be dissolved."

On fol. 57, he describes "ulcers of the privie parts," among which are corroding ulcers, but without reference to the lues. It is in the section headed, "To prepare the humours" (fol. 61) that the most explicit reference occurs: "When the ulcers proceed through the French pockes, a thinne diet must be used, with the decoction of guaiacum or use universall unctions ex Hydrargyro[1]."

In 1596 there appeared Peter Lowe's essay on *The Spanish Sickness*[2], which is purely a product of experience abroad, his own or of others, and is mainly doctrinal or theoretical. The other properly English works on the subject are all subsequent to the Restoration, and do not come into the period of this volume, nor, from an epidemiological point of view, into this work at all.

The evidence as to the wide prevalence of the pox in high

[1] John Banister, 'A needefull new and necessarie treatise of Chyrurgerie, briefly comprehending the generall and particular curation of ulcers...drawen forth of sundrie worthy writers...Hereunto is annexed certaine experimentes of mine owne invention.' London, 1575.

[2] Peter Lowe, *An easie, certaine and perfect method to cure and prevent the Spanish sicknes*, Lond. 1596. For an account of the book see *The Life and Works of Maister Peter Lowe*. By James Finlayson, M.D. Glasgow, 1889.

and low becomes abundant in the writings and memorials of the reign of James I. The effects of the disease, as they would have been commonly remarked at this period, are summed up in a well-known passage in *Timon of Athens*. It would serve no purpose to collect the numerous references from Puritan sermons, moral and descriptive essays, plays, and letters of the time. An anonymous work of the year 1652 actually couples "the plague and the pox," and shows "how to cure those which are infected with either of them[1]." One more piece of evidence may be given for London in the year 1662, or the beginning of the Restoration period,—a date which brings us down a century and a half from the epidemic invasion with which we are more immediately concerned; but the information for 1662 will serve to show how the existence of the disease was still viewed *sub rosa*, and it may help one to realize what its prevalence and its serious effects on the public health must have been continuously in the generations before, and most of all in the generation which experienced the full force of it as an epidemic[2].

The London bills of mortality, setting forth the several causes of death, were first printed in 1629. The entry of the French pox is in them from the beginning, and the annual total of deaths set down to it is considerable, approaching a hundred in the year. But according to Graunt, who made the bills of mortality the subject of a critical study in 1662[3], they were defective or incorrect in their returns of deaths due to the pox:—

"By the ordinary discourse of the world, it seems a great part of men have, at one time or other, had some species of this disease...whereof many complained so fiercely, etc." He then explains, with reference to the deaths entered as due to it in the bills of mortality: "All mentioned to die of the French pox were returned by the clerks of St Giles' and St Martin's in the

[1] *A Treatise concerning the plague and the pox, discovering as well the means how to preserve from the danger of these infectious contagions, or how to cure those which are infected with either of them.* London, 1652.

[2] Burnet (*History of his own Time*, I. 395–6, Oxford, 1823) retails a good deal of unsavoury gossip concerning the disease in noble and princely personages after the Restoration.

[3] *Natural and Political Observations upon the Bills of Mortality.* By Captain John Graunt, F.R.S. Preface dated from Birchin Lane, January, 1662.

Fields only, in which place I understand that most of the vilest and most miserable houses of uncleanness were; from whence I concluded that only *hated* persons, and such whose very noses were eaten off were reported by the searchers to have died of this too frequent malady"—the rest having been included under the head of consumption.

Origin of the Epidemic of 1494.

The French pox, as it was called in England (also the great pox and simply the pox), or the Spanish pox, as it was called in France, or the sickness of Naples, or the grandgore, is one of the epidemic diseases concerning which it seems fitting to say something of the antecedents, in addition to what has been said of its arrival as an epidemic in this country, and of its prevalence therein. But this will have to be said very briefly, and without entering upon the pathology or ultimate nature of the disease.

The numerous foreign writings upon it during the first years of its spread over Europe are all singularly at a loss to account for its origin. One of the earlier guesses was that it arose out of leprosy, as if a graft or modification of that mediæval disease, replacing it among the maladies of the people. The occasion of that hypothesis seems to have been the lax diagnosis of leprosy itself, a laxity which goes as far back as Bernard Gordonio and Gilbert, if not farther back. Many things were called *lepra* which were not elephantiasis Græcorum, and among those things the lues venerea in the Middle Ages was undoubtedly included. At a time when true leprosy was disappearing or had already disappeared from Europe, a new form of disease, which came suddenly into universal notice although by no means then first into existence, seemed to be the successor of leprosy, evoked out of it, and even caught from the leprous by contagion. That is the view of Manardus, in a passage quoted in the sequel,—that syphilis began in certain most particular circumstances at Valencia, in Spain, the source of all the subsequent contamination of Europe having been a certain soldier of fortune who was *elephantiosus* or leprous. In the infancy of a science it is natural to assign to some such

single and definite source a new phenomenon which was really called forth by a concurrence of causes[1].

Another guess of the same kind was the famous theory, which found a truly learned defender in Astruc last century and has had supporters more recently, that the lues venerea came from the New World with the returning ships of Columbus. There never was any considerable body of facts, consistent as regards times and places, in support of that theory; and, on antecedent grounds, the objection to it was that it is as difficult, to say the least, to conceive of the origin of such a disease among the savages of Hispaniola as among the natives of Europe. "Here or nowhere is America" is the proper retort to all such visionary theories put upon the distant and the unknown. The American theory is now hopelessly dead; the more that the New World became known, the less did syphilis appear to be indigenous to it: indeed the disease followed the track of Europeans, and those parts of the American continent, north and south of the Isthmus, which were longest in being reached by the civilisation of the Old World, were also longest in being reached by the lues venerea[2].

The name "sickness of Naples," which occurs in the Aberdeen records as early as 1507, indicates the common opinion of the laity as to the origin and means of diffusion of the strange malady. In the passage above quoted from Jones's *Dyall of Agues*, it will be seen that he refers it to "the besiegers of Naples." The besiegers of Naples were the mercenaries of Charles VIII. occupying it in the beginning of the year 1495, although there was no real siege. The new disease was at the time, rightly or wrongly, traced to them while they occupied Italy, and its diffusion over Europe was justly traced to their dispersion to their several countries at the end of the campaign. There is medical testimony that the malady appeared in 1495 among the Venetian and Milanese troops which were banded against Charles VIII. at the siege of Novara. Marcellus

[1] The origin of syphilis from leprosy has been maintained in a modern work by Friedr. Alex. Simon, *Kritische Geschichte des Ursprungs, der Pathologie und Behandlung der Syphilis, Tochter und widerum Mutter des Aussatzes*. Hamburg, 1857–8.

[2] Hirsch, *Geographical and Historical Pathology* (Translated), II. 67, 68, 81.

Cumanus, of Venice, who was surgeon to the forces, thus speaks of the event, in certain *Observationes de Luc Venerea* which he wrote on the margin of Argelata's work on Surgery[1]:

"In Italy, in the year 1495, owing to celestial influences, I have myself seen, and do testify that, while I was in the camp at Novara with the troops of the Lords of Venice and of the Lords of Milan, many knights and foot-soldiers suffered from an ebullition of the humours, producing many pustules in the face and through the whole body; which pustules commonly began under the prepuce or without the prepuce, like a grain of millet-seed, or upon the glans, attended by considerable itching. Sometimes a single pustule began like a small vesicle without pain, but with itching. Being broken by rubbing, they ulcerated like a corrosive *formica*, and a few days after, troubles began from pains in the arms, legs and feet, with great pustules. All the skilled physicians had difficulty in curing them....Without medicines, the pustules upon the body lasted a year or more, like a leprous variola." He then gives many other details of symptoms and treatment.

For the year after, 1496, two German writers, who were not surgeons but occupied with affairs of state, Sebastian Brant (author of the *Ship of Fools*) and Joseph Grünbeck, have described the disease, apparently in connexion with the troops serving in Italy under Maximilian I. against the invading army of Charles VIII. Thus, there is sufficient evidence that the malady in its first two or three years of epidemic prevalence, was associated with a state of war on Italian soil, in the persons of French troops (and mercenaries of all nations), of Venetian and Milanese troops, and of the German troops of the Emperor.

But the German writers are clear that the disease did not originate on Italian soil, at the siege of Naples or elsewhere. Thus Brant in his poem of 1496 assigns to it an origin in France, and a dispersion within a year or two over all Europe[2]:

"Pestiferum in Lygures transvexit Francia morbum,
Quem *mala de Franzos* Romula lingua vocat.
Hic Latium atque Italos invasit, ab Alpibus extra
Serpens, Germanos Istricolasque premit;
Grassatur mediis jam Thracibus atque Bohemis
Et morbi genus id Sarmata quisque timet.
Nec satis extremo tutantur in orbe Britanni
Quos refluum cingit succiduumque fretum.
Quin etiam fama est, Aphros penetrasse Getasque
Vigue sua utrumque depopulare polum."

[1] In Hensler, p. 14, and Appendix, p. 11.

[2] *Ibid.*, App. p. 15.

Grünbeck, who wrote briefly on the disease in 1496, returned to the subject at much greater length in 1503, when he was secretary to the Emperor Maximilian, his later treatise, *De Mentulagra, alias Morbo Gallico*, being, indeed, among the best that the epidemic called forth. Hensler doubts whether Grünbeck was himself in Italy, so as to observe the ravages of the disease among the troops of the Emperor (including Venetians and Milanese) at the sieges of Pisa and Leghorn in the summer of 1496, and among the opposing troops of Charles VIII. Be that as it may, the following is from Grünbeck's description[1]:

"O! quid unquam terribilius et abominabilius humanis sensibus occurrit! Difficile est dictu, creditu fere impossibile, quanta foeditatis, putredinis et sordium colluvione, quantisque dolorum anxietatibus nonnullorum militum corpora involuerit. Aliqui etiam a vertice ad usque genua quodam horrido, squalido, continuo, foedo et nigro *scabiei* genere, nulla parte faciei, (solis oculis exemtis), nec colli, cervicis, pectoris vel pubis immuni relicta, percussi, ita sordidi abominabilesque effecti sunt, qui ab omnibus commilitonibus derelicti, ac etiam in plano et nudo campo sub dio emarescentes, nihil magis quam *mortem* expetiverunt...At his omnibus nihil vel parum proficientibus, et morbo ipso non contento hoc hominum numero, ut eos solos tantis passionum cruciatibus afficeret, venenum contagiosum in multos spectantes Italos, Teutones, Helveticos, Vindelicos, Rhaetos, Noricos, Batavos, Morinos, Anglicos, Hispanos, et alios quos belli occasio in copias conscripserat, transfudit....Interea temporis, per clandestinam Gallorum abitionem, exercitus fuerunt dissoluti,"—Grünbeck himself proceeding with some merchants to Hungary and thence to Poland[2].

[1] In Hensler, Appendix, p. 66.

[2] The rise of the pox in the Italian wars, with its dispersion over all Europe, comes into "The Smallpox, a Poem" by "Andrew Tripe, M.D.," London, 1748:

"Whip! thro' both camps, halloo! it ran,
Nor uninfected left a man...
Hence soon thro' Italy it flew
Veiled for a while from mortal view,
When suddenly in various modes,
It shone display'd in shankers, nodes,
Swell'd groins, and pricking shins, and headaches
And a long long long string of dread aches...
From thence with every sail unfurl'd
It traversed almost all the world...
Until at length this Stygian fury
Worked its foul way to our blest Drury,
Where still Lord Paramount it reigns,
Pregnant with sharp nocturnal pains," etc.

How came this terrible infection to be among the troops of all nations on Italian soil in the years 1494, 1495 and 1496? Sebastian Brant clearly states that the French brought it with them, and that it spread first over Liguria. Grünbeck says that it was seen *primo super Insubriam*, or the Milanese, on which it rested like a dense cloud, until it was scattered by the winds over the whole of Liguria, and so found its way into the armies in Italy. Beniveni, of Florence, who wrote in 1498, says that it came to Italy from Spain, and from Italy was carried to France. Thus we have a theory of a Spanish origin, of a French origin, and perhaps also of a native Italian origin—all agreeing that Italy during the state of war from 1494 to 1496 was the theatre of its first ravages on the great scale, and the source from which the disease was brought to all the countries of Europe by the returning soldiery.

The solution of the difficulty is to be looked for in the inquiries after still earlier notices of the *lues venerea*. It is beyond the purpose of this book to enter upon that large subject, farther than has already been done with the object of proving the generic use of the medieval term *lepra*. It is now accepted by competent students of medical history that the same disease, with all varieties or modes of primary, secondary or tertiary, existed in antiquity and in the Middle Ages, although secondaries and tertiaries may not have been ascribed to their primary source. But what specially concerns us here is the question whether the malady was anywhere beginning to be more noticeable in the years immediately preceding the great military explosion on Italian soil. On that point there is some evidence from more than one source, that the malady was sufficiently prevalent in the south of France to be a subject of remark previous to the French expedition to Italy, that it had found its way to the ports of Spain (Barcelona and Valencia), and that the troops of Charles VIII., if not also that youthful monarch himself, carried it across the Alps into Liguria, and so gave it that start on Italian soil which the state of war for the next two years raised to the power of a virulent and diffusive epidemic[1].

[1] I do not include among the good evidence the often quoted letter of Peter

The best piece of evidence of its prevalence in Languedoc and its spreading thence to the adjoining coast of Spain is found in a letter of the 18th April, 1494 (four months before Charles VIII. entered Italy), written by Nicolas Scyllatius just after arriving at Barcelona[1]. The province of Narbonne, he says, a part of France adjoining Spain, now sent forth another vice. Women felt it most; it infected neighbours by contact; it has lately invaded Spain, hitherto untouched by it. "I was horrified," he continues, "on first landing at Barcelona; for I met with many of the inhabitants who were seized by that contagion. On my inquiring of the physicians (for with these I held converse during nearly all that journey), they assured me that the new *lues* had been derived from truculent France." In keeping with this entirely credible testimony is the statement of Torella, a native of Valencia, who wrote one of the earlier essays on the new disease ("De Pudendagra") in November, 1497. The disease first broke out, he says, in Auvergne in 1493 (incepit, ut aiunt, haec maligna aegritudo anno 1493 in Alervnia), and so came in the way of contagion to Spain and the Islands [to Sardinia, where he was bishop, and to Corsica], and to Italy, creeping in the end over all Europe, and, if one may so speak, over the whole globe[2].

Torella thus confirms the Barcelona traveller so far as regards importations from the south of France to the neighbouring ports, the former writer naming Auvergne as the endemic seat of the malady, whereas the latter gives Narbonne. Another piece of evidence, that the pox was in Valencia, as well as in Barcelona, before the expedition of Charles VIII., is found in a story told by Manardus of Ferrara (1500), a story which is wholly improbable so far as concerns the origin of syphilis, at a stated time and place, out of a case of leprosy,

Martyr to a professor of Greek at Salamanca, under the date of "nonis Aprilis, 1488," in which "morbus Gallicus" is used as well as the Spanish name "las bubas." It seems to me certain that the date should be 1498, or something else than 1488, the correspondence having gone on until 1525. The same kind of misdating occurs among the printed letters of Erasmus.

[1] This letter is printed in his *Opuscula*, Papiae, 1496. Attention was first called to it by Thiene, in his essay confuting the doctrine of the West-Indian origin of syphilis.

[2] In Hensler, App. p. 108.

but is entirely credible so far as regards the grossness of its circumstances:

"Coepisse hunc morbum per id tempus, dicunt, quo Carolus, Francorum rex, expeditionem Italicam parabat: coepisse, autem, in Valentia, Hispaniae Taraconensis insigni civitate, a nobili quodam scorto, cujus noctem elephantiosus quidam, ex equestri ordine miles, quinquaginta aureis emit; et cum ad mulieris concubitum frequens juventus accurreret, intra paucos dies supra quadringentos infectos; e quorum numero nonnulli, Carolum Italiam petentem sequuti, praeter alia quae adhuc vigent importata mala et hoc addiderunt[1]."

The evidence that follows is not so explicit, but it has strong probability. The progress of Charles VIII. from France to Italy in the autumn of 1494 has been told by Philip de Comines in his *Cronique du Roy Charles VIII.*, first printed at Paris in 1528, nineteen years after the author's death. De Comines accompanied his master, the French king, as far as Asti; he was then sent on a mission to Venice, and rejoined the king at Florence. But De Comines, who was no gossip, omits one interesting fact near the beginning of the journey to Italy, which has been preserved for us in a contemporary work (1503) called *La Cronique Martiniane*, or chronicle of all the popes down to Alexander Borgia lately deceased[2]. This chronicle relates as follows concerning Charles VIII.'s journey:—"Il se arresta premierement aucuns jours a Lyon, doubteux s'il passeroit les mons, car il y estoit detenu pour les delices et plaisances de la cité et pour les folles amours de aucunes gorrieres lyonnoises. Mais quant l'air devint pestilent, il s'en tyra à Vienne, citè de Daulphinè." His great army had already passed the Alps and arrived in the country of Asti: it is said to have consisted, in round numbers, of 3600 men-at-arms, 6000 bowmen, 8000 pikemen, and 8000 with arquebuses, halberds, two-handed swords, or other arms, together with a heavy artillery train of 8000 horses. A large part of this force were Swiss; another part were Gascons[3].

[1] Manardus, *Epist. Med.* lib. VII. epist. 2. Basil, 1549, p. 137 (as cited by Hirsch). The first letter of Manardus "de erroribus Sym. Pistoris de Lypczk circa morbum Gallicum," was printed in 1500 (Hensler, p. 47).

[2] I quote it from Hensler, *Geschichte der Lustseuche die zu ende des xv Jahr hunderts in Europa ausbrach.* Altona, 1783, Appendix, p. 109.

[3] Mezeray, *Histoire de France*, II. 777.

Charles VIII. left Vienne on the 23rd of August, and crossed Mont Genèvre on the 2nd September, whence he proceeded direct by Susa and Turin, joining his army at Asti on September 9. At Asti, says De Comines, he had an illness, which caused that minister to delay setting out on his mission to Venice for a few days. The original printed text of De Comines' *Chronique* (Paris, 1528), says that the author remained at Asti a few days longer "because the king was ill of the smallpox (*de la petite verolle*) and in peril of death, for that the fever was mixed therewith; but it lasted only six or seven days, and I set out upon my way." The next edition has no change but "in great peril of death" (*en grant peril de mort*), instead of merely "in peril." Now, where did this diagnosis of *petite verolle* come from? Nothing is said of smallpox being prevalent at the time among the troops or along their route. The name *petite verolle* itself did not exist in 1494; it came into existence with *grosse verolle*, having being made necessary by the latter; and the first that we hear of *grosse verolle* is when the Italian campaign was over and the pox was raging in Paris, the Parlement of Paris, on the 6th of March, 1497, having made an ordinance against a certain contagious malady "nommée *la grosse verole*," which had been in the kingdom and in the city of Paris since two years. Probably Comines deliberately wrote "*petite verolle*" in his manuscript, having composed the latter subsequent to 1498, or at a time when the terms *verolle*, or *grosse verolle*, and *petite verolle*, were passing current and were known in their respective senses. The causes or circumstances of the king's malady at Asti are not enlarged upon by De Comines, farther than that he makes a somewhat disjointed remark, that all the Italian wines of that year were sour and that the season was hot, which would have had as little to do with the one kind of pox as with the other. Nor is anything said of smallpox spreading among those near the king[1].

The whole sequence of events, from the "folles amours" of

[1] The diagnosis in De Comines' text appears to have struck the editors of the chief edition of his work, that of 1747; for they have appended a footnote to the passage, which is a superfluity unless it be meant to express surprise: "Charles VIII. malade de la petite vérole à l'age de vingt-deux ans."

Lyons to the sharp sickness at Asti, has suggested to historians, who have no medical theory to advocate, that it was not really *petite vérole* that the king suffered from, but *grosse vérole*. Martin says that Charles VIII. recommenced at Asti his Lyons follies and that he became violently sick, "of the smallpox, says one, or, perhaps, of a new malady which began to show itself in Europe," meaning syphilis. To show that such infection was already possible, he quotes an ordinance of the provost of Paris April 15, 1488, enjoining "the leprous" to leave the capital. This is very like Edward III.'s order to the London "lepers" a century and a half earlier, in which the reasons given (the frequenting of stews, the pollution of their breath, &c.) point somewhat clearly to the nature of their "leprosy." An order for the banishment of "lepers" from Paris in 1488 must have been occasioned by some unusual risk of contamination, just as the London order of 1346 would have been. It is in that sense that the French historian regards it; the ordinance, he says, "concernait probablement déjà les syphilitiques confondus avec les lépreux[1]."

De Comines, who is the authority for the diagnosis of smallpox, had inserted the word *petite* before *verolle* for reasons best known to himself. I shall show in the next chapter, upon smallpox and measles in England, that the ambiguous teaching of the faculty as to the nature and affinities of the pox proper within the first years of its epidemic appearance gave a ready opportunity of calling the *grosse vérole* by the name of *petite vérole* in circumstances where it was polite, or prudent, or convenient so to do. The only importance of a correct diagnosis of the king's malady is that the case of one would have been the case of many.

The indications all point to a somewhat unusual prevalence of *lues venerea* previous to the autumn of 1494, in the luxurious provinces of southern France as well as in the capital. Beyond doubt, the malady had already spread by contagion to the great Spanish ports nearest the Gulf of Lyons. The expedition of Charles VIII. passed through that region on its route over the Alps. According to Sebastian Brant, it was the French who

[1] Martin, *Histoire de France*, VII. 257, 283.

brought the disease into Liguria, and, according to Grünbeck, it issued, *Gallico tractu, ab occidentali sinu*, gathered like a dense cloud *super Insubriam* (the Milanese), and was thence dispersed, as if by the winds, over the whole province of Liguria.

But for the circumstances of the military expedition of 1494, and the state of war in Italy for two years after, it is conceivable that the unusual prevalence in France of a very ancient malady would have had little interest for Europe at large, although the cities on the nearest coast of Spain appear to have already shared the infection. That unusual prevalence in the south of France has in it nothing of mystery; the period was the end of the Middle Ages, distinguished by a revival of learning, of trade and commerce,—a revival of most things except morals. But, assuming that there was such unusual prevalence above the ancient and medieval level, it may still seem unaccountable that a great European epidemic, of a most disastrous and fatal type, should have been engendered therefrom.

There are, however, many parallel cases, on a minor scale from modern times, of a peculiar severity of type, of inveteracy, and of communicability by unusual ways, having been cultivated from commonplace beginnings, among unsophisticated communities about the Baltic and Adriatic, the people being without resident doctors and unfamiliar with such a disease and its risks. These have been collected and analyzed by Hirsch, whose conclusion is that "the mode of origin, and the character of these endemics of syphilis, appear to me to furnish the key to an understanding of the remarkable episode of the disease in the 15th century,—an episode which entirely resembles them as regards its type, and differs from them only as regards extent[1]."

Referring the reader for farther particulars to the work quoted, I shall leave the antecedents of the epidemic of pox in the end of the 15th century to be judged of according to the probabilities thus far stated.

[1] *Handbook of Geographical and Historical Pathology.* Translated by C. Creighton, 3 vols. London, 1883–86, II. 92–98.

CHAPTER IX.

SMALLPOX AND MEASLES.

With our modern habit of seeking out the matter of fact, of going back to the reality and of reconstructing the theory, it is not easy for us to understand how completely the medieval world of medicine was enslaved to authority and tradition even in matters that were directly under their eyes. It was thought a great thing that Linacre, of Oxford, in the first years of the 16th century, and Caius, of Cambridge, some fifty years later, should have gone back to Galen for their authority, passing over the Arabians who had been the interpreters of classical medicine all through the Middle Ages. Their editions of forgotten medical works of the Graeco-Roman school were a step forward in scholarship, and they opened the way to the first-hand observations of disease which really began some hundred years after with the writings of Willis, Sydenham and Morton. But smallpox and measles were not Galenist themes, they were peculiarly Arabian; and the very moderate share that England took in the medical Revival of Learning made no difference to the paragraphs or chapters on those diseases that were circulating in the medieval compends. While the Arabian or Arabistic writers of Spain, of Salerno, and of Montpellier were the depositaries and interpreters of the Galenic teaching, they were also the first-hand authorities upon some matters of specially Arabian experience, of which smallpox and measles were the chief. Whatever was said of those two epidemic maladies abroad, in the systematic works of Gordonio and Gilbert, and in the later compilation of Gaddesden in England, was not only of Arabian origin, but it

was all that was known of them. Rhazes, the original Arabic writer on smallpox and measles about the beginning of the 11th century, supplied both the doctrine and the experience. His observations and reasonings, altered or added to by his later countrymen, passed bodily into the medical text-books of all Europe. The interest in the treatise of Rhazes was so great that it was printed in 1766 by Channing, of Oxford, in Arabic with a Latin translation, and in an English translation from the original by Greenhill, of Oxford, in 1847.

In the literature we took over smallpox from the Arabians; but had we no native experiences of the disease itself, and, if so, when did it first appear in this country? One can hardly attempt an answer to these questions even now without stirring up prejudice and embittered memories. It has been the fate of smallpox, as an epidemological subject, to be invested with bigotry and intolerance. Whoever has maintained that it is not as old as creation has been suspected in his motives; anyone who shows himself inclined to put limits to its historical duration and its former extent in Britain is clearly seeking to belittle the advantages that have been derived during the present century from vaccination.

The wish to establish the antiquity of the smallpox in Europe has been as strong as the wish to overthrow the antiquity of the great pox. While undoubted traces of the latter in early times have been covered over with the generic name of leprosy, the vaguest reference to "pustules" or spots on the skin have been turned by verbalist ingenuity to mean devastating epidemics of smallpox. I am here concerned only with Britain, and must pass over the much-debated reference by Gregory of Tours to epidemics in the 6th century, the period of the Justinian plague. But in England the epidemic which stands nearest in our annals to the great plague of the 6th century, the widespread infection described by Beda as having begun in 664 and as having continued in monasteries and elsewhere for years after, has been claimed by Willan as an epidemic of smallpox[1]. Willan,

[1] *Miscellaneous Works of the late Robert Willan, M.D., F.R.S., containing an Inquiry into the Antiquity of the Smallpox, Measles, and Scarlet Fever, etc.* Edited by Ashby Smith, M.D., London, 1821.

with all his erudition, was a dermatologist, and acted on the maxim that there is nothing like leather. His contention in favour of smallpox has been referred to in the first chapter, dealing with the plague described by Beda, and need not farther concern us. It is not in England that we find evidence of smallpox in those remote times but in Arabia.

Smallpox in the Arabic Annals.

For our purpose the evidence on the antiquity of smallpox in China and India may be accepted, and for the rest left out of account. The Arabian influence is nearer to us, and is the only one that practically concerns us. Coming, then, to the history of smallpox in its prevalence nearest to Europe, we find a definite statement of the disease appearing first among the Abyssinian army of Abraha at the siege of Mecca in what was known as the Elephant War of A.D. 569 or 571. The best of the Arabic historians, Tabari[1], writes: "It has been told to us by Ibn Humaid, after Salima, after Ibn Ischâg, to whom Ja'gûb b. Otha b. Mughira b. Achnas related that one had said to him, that in that year the smallpox appeared for the first time in Arabia, and also the bitter herbs,—rue, colocynth [and another]." The tradition is by word of mouth through several, after the Semitic manner, but it need not on that account be set aside as worthless. So far as concerns the bitter herbs, it is said to be against probability; but as regards the new form of epidemic sickness, there is no such objection to it.

The Arabic legend, as given by Tabari is as follows: "Thereupon came the birds from the sea in flocks, every one with three stones, in the claws two and in the beak one, and threw the stones upon them. Wherever one of these stones struck, there arose an evil wound, and pustules all over. At that time the smallpox first appeared, and the bitter trees. The stones undid them wholly. Thereafter God sent a torrent which carried them away and swept them into the sea. But Abraha and the remnant of his men fled: he himself lost one member after

[1] Th. Nöldeke, *Geschichte der Araber und Perser, nach Tabari.* Leyden, 1879, pp. 218, 219.

another." In a former passage, the calamity of Abraha is thus given: "But Abraha was smitten with a heavy stroke; as they brought him along in the retreat, his limbs fell off piece by piece, and as often as a piece fell off, matter and blood came forth." To illustrate this account by Tabari, his recent editor, Nöldeke, cites the following from an anti-Mohammedan poem: "Sixty thousand returned not to their homes, nor did their sick continue in life after their return." One of the elephants which dared to enter the sacred region is said to have been also wounded and afflicted by the smallpox.

In this narrative of Abraha's disaster, says Nöldeke, there is a mixture of natural causation and of purely fabulous miracle; a real and sufficient account of the cause of the Abyssinian leader's discomfiture, namely, an outbreak of smallpox, had been blended with legendary tales. That the disease was smallpox is made probable by the continuity of the Arabic name; under the same name Rhazes, the earliest systematic writer, describes the symptoms, pathology and treatment of what was unquestionably the smallpox afterwards familiar in Western Europe. Why it should have originated on Arabian soil in an invading army from Africa, is a question that would require much knowledge, now beyond our reach, to answer conclusively.

Theory of the nature of Smallpox.

The nature of the disease should, however, be borne in mind always in the front of every speculation as to the origin of its contagious and epidemic properties. It involves no speculative considerations to pronounce smallpox a skin-disease, of the nature of lichen turned pustular. It is a skin-disease first, and a contagious or epidemic malady afterwards; its place among diseases of the skin is indeed fully acknowledged by dermatologists. Apart from its contagiousness it conforms to the characters of other cutaneous eruptions: its outbreak is preceded by disturbed health, including fever; when the eruption comes out the fever is so far relieved; and as in some other eruptions which are not contagious the constitutional disturbance is in

proportion to the area of the skin involved. Even the peculiar scars or pits which it leaves behind in skins of a certain texture or in the more vascular regions, such as the face, are not unknown in non-contagious skin-diseases; nor does its other peculiarity, the offensive odour of many pustules, seem unaccountable in a skin-disease native to tropical countries.

Eruptions on the skin are in many cases the outcome of constitutional ill-health; for example, the eczema of gout. Also where the whole body is infected, as in syphilis, there are skin-eruptions, which may be pimples (lichenous) or scales, or rashes, or, as in the first great outburst of syphilis, "pustules" so general over the body that those who were casting about for the nosological affinities of the new malady, saw no better place for it than Avicenna's group of *alhumata*, which included smallpox and measles. That a skin-eruption of the nature of smallpox should have come out as a constitutional manifestation, and that a number of persons should have exhibited it together for the same internal reason, are both credible suppositions, although necessarily unsupported by historic evidence. Let us suppose that the Abyssinian army before Mecca endured some ordinary discomfort of campaigning, that, in the uniformity of their life, numbers together had fallen into the same constitutional ill-health just as numbers together have often fallen into scurvy, and that an eruption of the skin, proper to the tropics, was part of it. What we have farther to suppose is that the constitutional eruption became catching from the skin outwards, so to speak,—that it could be detached from its antecedents in the body, and could exist as an autonomous thing, so that it would break out upon those who had none of its underlying constitutional conditions, but had been merely in contact with such as had developed it constitutionally or from within. Such detachment of a constitutional eruption from its primary conditions is little more than constantly happens when a skin-disease like eczema, or acne, persists long after its provocation, or the disordered health which called it forth, is removed. The inveteracy or chronicity of some skin-diseases is itself a form of autonomy, but a form of it which does not transcend the individual, just as, among infections themselves, cancer does

not transcend the individual or propagate itself by contagion[1]. But there exists a closer probable analogy for a secondary eruption becoming a self-existent or independent infective disease. The instance in view is no more than probable, and may easily be disputed by those who have sufficient prepossessions the other way; but there is no theory that suits so well the negro disease of yaws as that it is a somewhat peculiar secondary of syphilis, which is now able to be communicated as an exanthem detached from the primary lesions on which it had depended originally for its existence.

All the evidence, historical and geographical, points to the several varieties of the black skin (or yellow skin) as the native tissues of smallpox. It is not without significance that a disease of the negroes which was observed by English doctors not long ago in the mining districts of South Africa led to a sharp controversy whether it was smallpox or not: according to some, it was a constitutional eruption; according to others it was a contagious infection. Such phenomena are not likely to be seen in our latitudes; but the original smallpox itself was not a disease of the temperate zone[2].

I shall not carry farther this line of remark as to the probable circumstances in which a pustular eruption, among the Abyssinians before Mecca, or among other Africans or other dark-skinned races in other places and at other times, had

[1] The term "autonomy" in the foregoing is used according to the exposition which I originally gave of it in an address to the British Medical Association (1883) on "The Autonomous Life of the Specific Infections" (*Brit. Med. Journ.*, Aug. 4, 1883). The semi-independence of constitutional states has been dealt with in my book, *Illustrations of Unconscious Memory in Disease.* London, 1885.

[2] The South-African controversy, which became acute, was carried on in journals of the colony (the *South African Medical Journal* about 1883 and 1884 is a likely source of information), but some echoes of it were heard in letters to the *British Medical Journal*, 1884. A few years ago a similar diagnostic difficulty arose, not in an African race, but among the inmates of a Paris hospital. In the smallpox wards of the Hôpital St Antoine, a number of cases occurred, one of them in a nurse, another in an assistant physician, of a particular skin-disease, which was either discrete or confluent, lasted about ten days, and was attended by fever up to 40° C. or 41° C. Yet these cases were discriminated from smallpox; they were diagnosed, and have been recorded, as an epidemic of ecthyma. (Du Castel, *Gazette des Hôpitaux*,' 1881, No. 122, quoted in the *Jahresbericht.*)

become epidemically contagious in the familiar way of smallpox. One has to learn by experience that there is at present no hearing for such inquiries, because a certain dominant fashion in medicine prefers to relegate all those origins to the remotest parts of the earth and to the earliest ages (practically *ab aeterno*), and there to leave them with a complacent sense that they have been so disposed of. That is not the way in which the study of origins is carried out for all other matters of human interest. Yet diseases are recent as compared with the species of living things; some of them are recent even as compared with civilized societies. Epidemical and constitutional maladies touch at many points, and depend upon, the circumstances of time and locality, and upon racial or national characters. Perhaps their origins will one day be made a branch of historical or archaeological research.

European Smallpox in the Middle Ages.

The present extensive prevalence of smallpox among the Arabs may or may not date from the Elephant War of A.D. 569. Its prevalence also in Abyssinia, so widely in modern times that almost everyone bears the marks of it, may have no continuous history from the return of Abraha's expedition. But the history of smallpox in the West comes to us through the Saracens, and there can be no question that the disease is at the present day peculiarly at home in all African countries, and most of all in the upper basin of the Nile, where, as Pruner says, "it appears as the one great sickness[1]." It is a remark of Freind, whose erudition and judgment should carry weight, that "the Saracens first brought in this distemper, and wherever their arms prevailed, this spread itself with the same fury in Africa, in Europe, and through the greatest part of Asia, the eastern part especially[2]." Our inquiry here does not extend beyond England, so that the extremely disputable question of the amount and frequency of smallpox in the European

[1] *Krankheiten des Orients.* Erlangen, 1847, p. 127.
[2] *History of Physic*, II. 190.

countries conquered or invaded by the Saracens in the Middle Ages need not be raised[1].

So far as concerns England, smallpox was first brought to it, not by the Saracen arms, but by Saracen pens. The earliest English treatise on medicine, the *Rosa Anglica* of Gaddesden, has the same chapter "De Variolis [et Morbillis]" as all the other medieval compends—in substance the same as in the earlier work of Gilbert, and in all the other Arabistic writings earlier or later. The *Rosa Anglica* was a success in its day, partly, no doubt, by reason of its style being more boisterous than that of Gilbert's or Gordonio's treatises, partly, also, on account of its blunt indecency in certain passages. Guy de Chauliac, of Avignon, one of the few original observers of the time, had heard of the *Rosa Anglica*, and was curious to see it; but he found in it "only the fables of Hispanus, of Gilbert, and of Theodoric," and he rather unkindly fixed upon it the epithet of "fatuous." What de Chauliac had probably heard of was Gaddesden's occasional claims to originality; and these we shall now examine so far as they concern smallpox.

One of Gaddesden's variations from the stock remarks on smallpox is his explanation of why the disease was called variola: it is called variola, says he, because it occurs *in diverse*

[1] Gruner, a learned professor of Jena, who made collections of works or passages relating to syphilis and to the English sweat, published also in 1790 a collection of medieval chapters or sentences on smallpox, "De Variolis et Morbillis fragmenta medicorum Arabistarum," including the whole of Gaddesden's chapter but omitting the earlier and more important chapter from Gilbert. Gruner correctly says at the end of his extracts: "while the Arabists write thus, they seem to have followed their Arabic guides, and to have repeated what they received from the latter." This is obvious from the text of the chapters themselves: some quote more often than others from Avicenna, Rhazes and Isaac; but it is clear that they all base upon the Arabians. The substance is the same in them all; it is a merely verbal handling of Arabic observation and theory. There are no concrete experiences or original additions, from which one might infer that they were familiar at first hand with smallpox and measles. Häser, however, seems to take these chapters in the medieval compends as evidence of the general prevalence of smallpox in Europe in the Middle Ages. As he finds little writing about smallpox when modern medical literature began, he is driven into the paradox that epidemics of smallpox had actually become rarer again in the sixteenth century (III. p. 69). But the sixteenth-century references to smallpox, although they are indeed scanty, are at the same time the earliest authentic accounts of it in Western Europe.

parts of the skin (*quia in cute diversas partes occupant*). This is an ingenious improvement upon Gilbert, who says that it is called variola from the variety of colours (*et dicitur variola a varietate coloris*)—sometimes red, sometimes white, or yellow, or green, or violet, or black. Another remark attributed (by Häser at least) to Gaddesden as original, is that a person may have smallpox twice; but Gaddesden, in a later paragraph, shows where he got that from: "And thus says Avicenna (*quarto* Canonis), that sometimes a man has smallpox twice—once properly, and a second time improperly." The most famous of Gaddesden's originalities is his treatment by wrapping the patient in red cloth; for that also Häser ascribes to him. But Peter the Spaniard, the Hispanus of de Chauliac's reference given above, is before him with the red-cloth treatment also, while he is candid enough to quote Gilbert: "Any cloth dyed in purple," says Hispanus, "has the property of attracting the matter to the outside."

Gilbert's reference is as follows: "Old women in the country give burnt purple in the drink, for it has an occult property of curing smallpox. Let a cloth be taken, dyed *de grano*." Bernard Gordonio, also, says: "Thereafter let the whole body be wrapped in red cloth." There was probably Arabic authority for that widely diffused prescription, as for all the rest of the teaching about smallpox. But Gaddesden does improve upon his predecessors in boldly appealing to his own favourable experience of red cloth:—"Then let a red cloth be taken, and the variolous patient be wrapped in it completely, as I did with the son of the most noble king of England when he suffered those diseases (*istos morbos*); I made everything about his bed red, and it is a good cure, and I cured him in the end without marks of smallpox."

With reference to this cure, it has to be said, in the first place, that the object of the red cloth was to draw the matter to the surface[1], and that it had nothing to do with the pre-

[1] This intention is most clearly expressed by Valescus de Tharanta: "Then let him be wrapped in a woollen cloth of Persian, or at least of red, so that by the sight of the red cloth the blood may be led to the exterior and so be kept at no excessive heat, according to the tenour of the sixth canon [of Avicenna]." *Apud* Gruner, p. 46.

vention of pitting. The means to prevent pitting was usually to open the pustules with a golden needle; that is the Arabian advice, and all the Arabists copy it. Gaddesden among the rest copies it, but he does not say that he practised it on the king's son. If he had said so, we might have believed that the disease was actually one bearing pustules which could be opened by a needle. What he says, in the earliest printed text (Pavia, 1492) is that, while the king's son was "suffering from those diseases," he caused him to be wrapped in red cloth, and the bed to be hung with the same, and that he cured him without the marks of smallpox. Gaddesden was not altogether an honest practitioner; on the contrary he was an early specimen of the quack *in excelsis*. According to the learned and judicious Dr Freind, "his practice, I doubt, was not formed upon any extraordinary knowledge of his faculty;" and again, "He was, as it appears from his own writings, sagacious enough to see through the foibles of human nature; he could form a good judgment how far mankind could be imposed upon; and never failed to make his advantage of their credulity[1]." The opportunity of diagnosing variola in the king's son, and of curing it by red cloth, so as to leave no pits, was one that such a person was not likely to let slip. "It is a good cure," he says; and we may go so far with him as to admit that it must have been impressive to the royal household to have heard some sharp sickness of the nursery called by the formidable name of variola, and to have seen it cured "*sine vestigiis*."

Measles in Medieval Writings.

In the writings of the Arabians and of their imitators, the so-called Arabists, measles and smallpox are always taken together. The usual distinction made between them is that *morbilli*, or measles, come from the bile, whereas *variolae*, or smallpox, come from the blood, that the former are small, and that they are less apt to attack the eyes. The reference in Gaddesden is of the usual kind, but it is complicated by the

[1] *History of Physic*, Pt. II. p. 280.

introduction of a third term, *punctilli*, which Gruner, however, takes to be merely a synonym for *morbilli*. As Gaddesden's passage is of some importance for the history of the familiar name of the disease in England, I shall translate it at length, so far as it can be made into sense:—

"Variolae are so called, as if variously choosing the skin itself, because in the skin they occupy divers parts, by apostematising and infecting; they are caused by corruption of blood, and therein they differ from morbilli and punctilli.

Morbilli are small apostemata in the skin generated of bile; and they are a diminutive of apostematous diseases because they occupy less space by reason of the sharpness of choleric matter. They are in fact variolae of choleric matter, and the smallest of pustules. But punctilli are infections commonly sanguineous, as if they had arisen from a fleabite, only they remain continually. And punctilli are of two kinds, large and small. Of the small I have already spoken [under the name of morbilli?]. But the large are broad, red and opaque infections in the legs of poor and wasting persons, (*pauperum et consumptuorum*), who sit as if continually at the fire without boots; and they are called in English *mesles*[1]."

The rest of Gaddesden's chapter on smallpox and measles contains nothing that is not to be found in Avicenna or in any medieval compend on medicine. But the passage quoted is of interest as using the old word "mesles" to mean one of the two forms of *morbilli* or *punctilli*. We are here enabled to see a little way into the confusion of mind which attended the medievalists in their verbalist dealing with disease. The syntax of Gaddesden's sentence implies that the broad, red and opaque infections on the legs of poor and wasted persons were called in English *mesles*. In other writers, both before and after his date, the name of mesles or mesels or meseals was given, not to a form of disease, but to a class of sufferers from disease. It is the name applied to the inmates of leper-houses by Matthew Paris (circa 1250)—*miselli* and *miselllae*, being diminutives of *miser*[2]. It is the word used for the same class in the Norman-French entries in the Rolls of Parliament in the reign of Edward I. fixing the taxation of leper-houses: if the head of the house was himself a *meseal*, the hospital was to

[1] *Rosa Anglica*. Papiae, 1492.
[2] *Chronica Majora*. Rolls ed. v. 452.

pay nothing, but if the head were a whole man, the hospital had to pay[1]. The same use of mesles, as meaning the leprous, in the generic sense, occurs several times in the 14th century poem, 'The Vision of Piers the Ploughman[2].' Thus, Christ in His ministrations,

> "Sought out the sick and sinful both,
> And salved sick and sinful, both blind and crooked;
> And comune women converted, and to good turned.
> Both meseles and mute, and in the menysoun bloody,
> Oft he heled such. He ne held it for no mystery,
> Save tho he leched Lazar that had ylain into grave."

Or again:

> "Ac old men and hore that helpless ben of strength,
> And women with child that worche ne mowe,
> Blind and bedred and broken their members,
> That taketh their mischief mekely, as meseles and other."

It is this old English word "mesles," meaning the leprous in the generic sense, that Gaddesden brings into his Latin text in connexion with *morbilli* (or *punctilli*). It is useless to look for precision in such a writer; but if his introduction of "mesles" in the particular context mean anything at all, it means that the English word represented a variety of *morbilli*,—the large, broad and opaque variety. That it should have occurred to him to bring these blotches or spots on the legs of poor people even remotely into relation with the *morbilli* of the Arabians, probably means that Gaddesden had a merely verbal acquaintance with the latter, or that he knew them only in books. It is certainly improbable that anyone, even in the Middle Ages, who had ever seen a case of measles should bracket that transitory and insubstantial mottling of the skin, with the large, broad and "obscure" spots (or nodules, or what else) on the legs of poor and wasted persons, which were called, in the vernacular, mesles. But Gaddesden, though a verbalist and a plagiary, was a great name in medicine, a name usually joined (as in Chaucer) with more solid reputations than his own. If he identified "mesles" with a variety of

[1] *Rolls of Parliament.*

[2] Early English Text Society's edition by Skeat. Passus xvi. (108), and Passus vii.

morbilli (which variety no one but himself seems to have heard of), it was an easy transition for the name in English usage to become what it now is, measles meaning *morbilli*, in the correct and only real sense of the latter[1].

History of the name "Pocks" in English.

Gaddesden's case of *variola* which he cured without pitting by means of red cloth stands alone in English records until the 16th century; probably he was as little able to diagnose variola as *morbilli*, and it is more than probable that he would not have scrupled to call some infantile malady by the book-name *variola*, on the principle of "omne ignotum pro terribili," when there was

[1] Trench, in his *Select Glossary*, has adopted the derivation of measles from *misellus*, without apparently knowing that John of Gaddesden had actually used "mesles" for a form of *morbilli*. The derivation of measles from *misellus* has been summarily rejected by Skeat, who thinks that "the spelling with the simple vowel *e*, instead of *ae* or *ea*, makes all the difference. The confusion between the words is probably quite modern." Perhaps I ought not to contradict a philologist on his own ground; but there is no help for it. I know of four instances in which the simple vowel *e* is used in spelling the name of the disease that is associated with smallpox, the English equivalent of *morbilli*. In a letter of July 14, 1518, from Pace, dean of St Paul's to Wolsey (*Cal. State Papers*, Henry VIII. II. pt. 1), it is said, "They do die in these parts [Wallingford] in every place, not only of the small pokkes and mezils, but also of the great sickness." In the *Description of the Pest* by Dr Gilbert Skene, of Edinburgh (Edin. 1568, reprinted for the Bannatyne Club, 1840, p. 9), he mentions certain states of weather "quhilkis also signifeis the Pokis, Meşillis and siclik diseisis of bodie to follow." And if a Scotsman's usage be not admitted, an Oxonian, Cogan, says, "when the small pockes and mesels are rife," and another Oxonian, Thomas Lodge, in his *Treatise of the Plague* (London, 1603, Cap. iii.) says: "When as Fevers are accompanied with Small Poxe, Mesels, with spots," etc. On the other hand, Elyot, in the *Castel of Health* (1541), Phaer in the *Book of Children*, (1553), Clowes in his *Proved Practice*, and Kellwaye (1593) write the word with *ea*. There is, indeed, no uniformity, just as one might have expected in the sixteenth century. Again, Shakespeare (*Coriolanus*, Act III., scene 1) spells the word with *ea* where it is clearly the same word that is used in *The Vision of Piers the Ploughman* in a generic sense and in the spelling of "meseles:"—"Those meazels which we disdain should tetter us." Lastly, there are not two words in the Elizabethan dictionaries, one with *e* signifying lepers, and another with *ea* signifying the disease of *morbilli*. In Levins' *Manipulus Vocabulorum*, we find "ye Maysilles"=*variolae*, but there is no word "mesles"=*leprosi*. There was only one word, with the usual varieties of spelling; and in course of time it came to be restricted in meaning to *morbilli*, Gaddesden's early use of "mesles" in that sense having doubtless helped to determine the usage.

anything to be gained by so doing. There is no independent evidence that smallpox or measles existed in England in the 14th and 15th centuries. There are extant various medieval prescription-books, in which remedies are given for all the usual diseases. If the name of *variola*, or any English form of it, occur therein, we should draw the same inference as from the prescriptions for maladies of children such as "the kernels," and "the kink" (or whooping-cough)[1]. In the Anglo-Saxon "leechdoms," which have been collected in three volumes, the word *poc* occurs once in the singular in the phrase "a poc of the eye" (probably a hordeum or sty of the eyelid), and once in the plural (*poccan*) without reference to any part of the body and with no indication that a general eruption was meant. Willan, indeed, has found in a manuscript of uncertain date a Latin incantation against disease, in which the words *lues*, *pestis*, *pestilentia*, and *variola* occur; at the end of it is written in Anglo-Saxon an invocation of certain saints to "shield me from the *lathan poccas* and from all evil[2]." This looks as if *poccas* had been the Anglo-Saxon translation of *variola*. But it remains to be seen in what sense the word "pokkes" was used in the earliest English writings.

In the 'Vision of Piers the Ploughman' (passus XX) the retribution of Nature or "Kynde" upon the wickedness of the times is thus mentioned:

> "Kynde came after with many keen sores,
> As pokkes and pestilences, and much people shent;
> So kynde through corruptions killed full many."

In the lines immediately preceding there occur some other names, equally generic:

> "Byles and boches and brennyng agues
> Frensyes and foul evils, foragers of kynde."

[1] *Harl. MS.*, No. 2378. So far as I have observed, there is no prescription for "mesles," or for smallpox under its Latin name or under any English name that might correspond thereto. Moulton's *This is the Myrror or Glasse of Helth* (? 1540), which reproduces these medieval prescriptions with their headings, is equally silent about smallpox and measles.

[2] Willan's *Miscellaneous Works*. "An Inquiry into the Antiquity of the Smallpox, Measles, and Scarlet Fever." London, 1821, p. 98. The MS. is Harleian, No. 585.

"Boche" is botch,—the name given to the plague as late as the Stuart period, from its chief external sign, the bubo; and "byles" is merely the Latin *bilis* = *ulcus*. "Pokkes" may be the Anglo-Saxon word; but it is known that many of Langland's colloquialisms are of Norman or French origin, and in that language there is a term *poche*, which is not far from the English "boche." Whether "poche" be the same as "boche" or not, "pokkes and pestilences" may be taken to be synonyms for "byles and boches." The generic or elastic use of such terms received a striking illustration in 1528, when spotted fever (typhus), perhaps mixed with plague, became exceedingly common among French and Spanish troops. Among the French the disease was called *les poches* and among the Spaniards *las bubas*[1], although both names had been assigned to syphilis at the time of its epidemic outburst in the end of the 15th century. In those times diseases were called by their external marks; so that diseases essentially most unlike, but having certain spots, or blemishes, or botches, or pustules of the skin in common, were called by a common name. The plague itself was known by certain spots on the breast or back called tokens: hence the figure of John Stow and others that "many died of God's tokens."

There was certainly laxity of naming to that extent in the case of modern languages. As to Willan's inference from the medieval incantation, it is by no means clear that *variola* in medieval Latin may not have been used generically also; although, in the school of Salerno it appears to have had its meaning fixed, in the Arabic sense of smallpox, from the time of Constantinus Africanus, who introduced the teaching of Bagdad into that school about the year 1060.

The next use of "pokkes" that I have found is in a manuscript chronicle of England down to the year 1419[2], one of the series known as the chronicle of the Brute (from its commencing with the mythical landing of Brutus in England after the siege of Troy); this manuscript, known as the "Fruit of Times," was

[1] Sandoval, cited by Hecker, *Der Englische Schweiss*. Berlin, 1834, p. 80.
[2] MS. Harl., 1568.

afterwards printed at the St Albans press about 1484[1], the history being carried down to Edward IV., and the passage in question reproduced exactly as it stands in the handwriting. Under the 40th year of Edward III. (1366) there is the following entry:

"Ther fell also such a pestalence that never none such was seen in no man's tyme or lyf, for many men as they were gone to bede hole and in gude poynte sodanly thei diede. Also that tyme fell a seknes that men call ye pokkes, slogh both men and women thorgh ther enfectyne."

It is clearly the same passage that occurs condensed in the chronicle of William Gregory, mayor of London, which was written probably in 1451–52[2]. Under the 40th of Edward III., after referring to a "grete batille of sparows" just as the earlier chronicle does, he proceeds: "Also the same yere men and bestys were grettely infectyd with pockys, wherfore they dyde, bothe men and bestys." The variation of "men and beasts," instead of men and women, is curious, and suggests that there may have been a common source for the story. The chronicle contemporary with 1366, which is of best authority, was that kept at St Albans Abbey; but it gives nothing under that year. Shortly after 1361, however, and probably about 1362 or 1363 it has a singular entry, which may have been the source of these references to "pockys." The Latin may be translated thus: "Numbers died of the disease of lethargy prophesying troubles to many; many women also died of the flux; and there was a general murrain of cattle[3]." Here we have men, women, and cattle; also lethargy, flux, and murrain; and it is conceivable that later compilers of English chronicles may each have used this contemporary Latin entry of composite events to put their own gloss upon it, or to amplify the history into what each conceived to be the probable meaning. But the most singular enlargement was that made by Holinshed in his chronicle of

[1] There is a fine copy of the earliest printed version in the British Museum, with "Sanctus Albanus" for colophon. The same text was reprinted often in the years following by London printers—in 1498, 1502, 1510, 1515 (twice), and 1528.

[2] Camden Society, ed. Gairdner, 1876, p. 87.

[3] Walsingham, *Hist. Angliae*, I. 299. Also *Chronicon Angliae a quodam Monacho, sub anno* 1362.

1577. Having copied word for word, sparrows and all, the entry under the year 1366 in the "Fruit of Times" (as printed at St Albans about 1484), he takes leave to amend the sense in the part that chiefly concerns us—he changes "pockys" into "smallpocks," and "men and women" into "men, women, and children[1]." Holinshed was dealing with an event two hundred years before his own time, and had no more first-hand knowledge of it than we have; but his authority has been accepted for the fatal prevalence of smallpox in 1366 by modern writers on the history of that disease, such as James Moore[2], who have not sought for the contemporary authority nor exercised a critical judgment upon the lax ways of verbalist compilers. Thus is history made—but not so easily unmade.

One other reference to "pockys" has to be noticed before we leave the philological part of the subject and come to the unambiguous history of the realities. Fabyan, in his *Chronicle* written not long before his death in 1512, says that Edward IV. during an expedition to the Scots Marches "was then vysyted with the syknesse of pockys[3]." It is futile to conjecture what the king's illness may really have been. The word in Fabyan's time had already acquired a technical sense, which it has ever since retained; but that well-understood meaning was some twenty years later than the year 1474 (although the disease itself doubtless existed all through the Middle Ages); while, in its earlier generic sense, as in the 'Vision of Piers the Ploughman,' it seems to have meant botches or other tokens of pestilential disease. In a Latin glossary of English words, published a hundred years after[4], "a pocke" is still defined as *phagedaena*, and "the French pocke" as *morbus Gallicus*, while "smallpox" is not given at all.

[1] "Also manie died of the smallpocks, both men, women and children."

[2] *History of the Smallpox*, 1817. Blomefield, also, in his *History of Norfolk*, quotes the passage about "pockys" correctly from the "Fruit of Times," applies it to Norwich, to which city it had no special relation, and then says that this is the first mention of "small pocks."

[3] Fabyan's *Chronicle*. Ed. Ellis, p. 653.

[4] Levins, *Manipulus Vocabulorum*, 1570. Camden Society's edition, column 158.

Smallpox in England in the 16th Century.

The earliest references to smallpox in England, apart from the probably incorrect one by Gaddesden early in the 14th century, occur in letters of the years 1514 and 1518. Another letter of 1514 will serve to bring out the ambiguity of the names given to diseases at the time. On June 30, 1514, Gerard de Pleine writes from London to Margaret of Savoy that he had been asked by the bishop of Lincoln why the marriage between the princess Mary and Louis XII. had been broken off (it took place shortly after), and by another great peer whether Louis XII. "avoit eu les pocques," which last sentence has a marginal note in the printed collection of letters: "c'est la petite verole[1]." But *les pocques* in a letter written from London in 1514 did not mean the smallpox. In a letter of March 3, 1514, Peter Martyr writing in Latin from Valladolid to Ludovico Mendoza, says that the King of England has had a fever, and that the physicians were afraid it would turn to the pustules called *variolae*, but he is now well again and rises from his bed[2]. This illness of Henry VIII. happened at Richmond previous to 7th February. Although in the letter quoted there was only a fear that the illness might have turned to the pustules called smallpox, yet in the instructions of Henry VIII. to Spinelly, English ambassador in the Low Countries, sent in February, the twelfth item instructs him to say that the English king has lately been visited by a malady "nommée la petitte verolle[3]."

Four years after, on July 14, 1518, Pace writes to Wolsey from Wallingford, where the court then was, that the king was to leave next day for Bisham "as it is time; for they do die in these parts in every place, not only of the small pokkes and mezils, but also of the great sickness[4]."

[1] *Lettres du Roy Louis XII.* Brusselle, 1712, IV. 335.

[2] *Cal. State Papers.*

[3] "Item, que à son grand desplaisir il ait esté naguaires mal disposé d'une maladie nommée la petitte verolle, dont à present, graces à Dieu, il est recouvert et passé tout dangier." *Lettres du Roy Louis XII.*, IV. 260. Brusselle, 1712.

[4] *Cal. State Papers.*

These are the earliest known instances of the use of the words *pocques*, *variola*, *petite verolle*, "small pokkes and mezils," as applied to particular cases of sickness, in correspondence from or relating to England. The remarks to be made upon the early usage are: first, that the word *pocques*, as used by one writing in French from London in 1514, did not mean smallpox, but pox; second, that the first authentic mention of smallpox happens to have been in the French form—"une maladie nommée la petitte verolle;" third, that, in the political gossip of the time the opinion of the physicians regarding the illness of the young king is given as of a fever which they feared might have turned to the pustules called "*variolae*;" and fourthly, that in the very first mention of the disease *variola* by an English name "small pokkes," the name is modelled on the French, being coupled with the old English name "mezils." It is impossible to infer from these references anything as to the amount of smallpox in England at the time, or even to be sure of the correctness of the diagnosis. The lax usage as between "pox" and "smallpox" is shown in a book of the year 1530 called 'Prognosticacions out of Ipocras and Avicen,' in which a brief reference to *variola* in the Latin original is translated "to prognosticate of the pockes."

In Sir Thomas Elyot's *Castel of Health*, published in 1541, children after their first infancy are said to suffer from a number of maladies, and in "England commonly purpyls, meazels and smallpockes." That is perhaps the first use of the terms in a systematic work on medicine, not indeed by one of the faculty, but by a layman. About the same time we hear of smallpocks in an infant of noble family: a letter of May 26, 1537, from Charles duke of Suffolk to Cromwell, written from Hoxun in Suffolk, excuses his not repairing to Lincolnshire, as the king had ordered, on the ground that "his son fell sick of the smallpox and his wife of the ague[1]." "His son" was Henry Brandon, born September 18, 1535, so that he was then an infant of some twenty months; he is the same that died, with his younger brother, of the sweating sickness in July 1551.

The reference to smallpocks and meazels by Elyot in his

[1] *Cal. State Papers.*

Castel of Health is repeated in the almost contemporary *Book of Children* by Thomas Phaer. Whether Phaer translated that also "out of the French tongue" as he did the *Regiment of Life*, with which it is bound up in the edition of 1553, we have nowhere any information. In a list of forty infirmities of children, the 32nd in order is "small pockes and measels." A later passage in the *Book of Children* shows how much, or how little, intelligent meaning Phaer attached to these terms: "Of smallpockes and measels. This disease is common and familiar, called of the Greeks by the general name of exanthemata, and of Plinie papulae et pituitae eruptiones. It is of two kinds:—varioli, ye measils; morbilli, called of us ye smal pocks. They be but of one nature and proceed of one cause. The signs of both are so manifest to sight that they need no farther declaration;"—but he does add some signs, such as "itch and fretting of the skin as if it had been rubbed with nettles, pain in the head and back etc.: sometimes as it were a dry scab or lepry spreading over all the members, other whiles in pushes, pimples and whayls running with much corruption and matter, and with great pains of the face and throat, dryness of the tongue, hoarseness of voice, and, in some, quiverings of the heart with sownings." He then gives the four causes, three of them being intrinsic states of the humours, and the fourth "when the disease commenceth by the way of contagion, when a sick person infecteth another, and in that case it hath great affinity with the pestilence." The treatment is directed towards bringing out the eruption; all occasions of chill are to be carefully avoided. More special directions are given for cases in which "the wheales be outrageous and great;" also, "to take away the spots and scarres of the small pockes and measils," a prescription of some authors is given, to use the blood of a bull or of a hare.

The whole of Phaer's section on smallpox and measles bears evidence of a foreign source, namely the same stock chapter from which Kellwaye drew most of his section upon the same two diseases appended to his book on the plague in 1593. Not only does Phaer speak of smallpox and measles conjointly as leaving spots and scars, but he actually renders *variolae* by measles, and

morbilli by smallpox. Phaer was more of a literary compiler than a physician with original knowlege of diseases and their pathology. But he is not singular among the Tudor writers in taking measles to be the equivalent of *variolae*. William Clowes, of St Bartholomew's Hospital, one of the most experienced practitioners of his time, does the same. His *Proved Practice for all Young Chirurgeons* has an appendix of Latin aphorisms "taken out of an old written coppy," to each of which aphorisms Clowes has added an English translation: in the aphorism on *variolae*, that term is translated "measles," the name of "smallpox" nowhere occurring in the book. Clowes's translation is exactly in accordance with the English-Latin glossary of the time by Levins (1570). Levins was an Oxford fellow who had graduated in medicine and afterwards become a schoolmaster, just as Cogan, of *The Haven of Health*, had done. He wrote the *Pathway of Health*, and also compiled the *Manipulus Vocabulorum*. His definitions in the latter may be taken, therefore, to stand for the medical usage of the time. In this glossary, "ye maysilles" is rendered by *variole*, while the name of "smallpox" is omitted altogether, "a pocke" having its Latin equivalent in *phagedaena*, and "ye French pocke" in *morbus Gallicus*. In the Elizabethan dictionary by Baret, "the maisils" is defined as "a disease with many reddish spottes or speckles in the face and bodie, much like freckles in colour;" and that was the disease which the English profession then understood to be the same as the *variolae* of medieval writers.

I leave readers to draw their own conclusions, whether there was much or little smallpox or measles in England in the Tudor period. They may be reminded that Pace, dean of St Paul's, in a letter from Berkshire in 1518, asserts the fatal prevalence of "smallpox and mezils," and that the duke of Suffolk called the illness of his infant son by the name of smallpox in 1538. They may be farther helped to a conclusion by the following curious instance which has been recorded by John Stow.

Among the miscellaneous collections of that antiquary preserved in the Lambeth Library[1], there is a narrative of the troubled conscience of Master Richard Allington, esquire, a

[1] Edited by Gairdner for the Camden Society, 1880.

gentleman who appears to have lent money at high interest. Believing himself to be dying on November 22, 1561, he summoned to his bedside at eight in the evening the Master of the Rolls ("Sir John of the Rolls"), two doctors of the law and two other lawyers.

He began: "Maisters, seinge that I muste nedes die, which I assure you I nevar thought wolde have cum to passe by this dessease, consyderinge it is but the small pockes, I woulde therefore moste hertely desyre you in the reuerence of God and for Christes passions sake to suffer me to speake untyll I be dede, that I may dyscharge my conscens" etc. He then explains that "no man had so especial tokens of God's singular grace, and so litele regarded them as I have done," and goes on to mention particular acts of usury and to offer restitution to the amount of some hundred pounds or more. It had occurred to him to do so the second night after he fell sick, being in perfect memory lying in his bed broad awake, but with puppets dancing around him. After entrusting the lawyers at his bed side with these restitutions, he asked the Master of the Rolls to read to him certain of the penitential Psalms which the sick man had selected as appropriate. "And then he thought he should have died, but then broth being given unto him, he revived again and fell to prayer and gave himself wholly to quietness;" and there the narrative ends.

It appears from a reference in Stow's *Survey of London* that he did die in 1561, and that his widow was left well off: for she afterwards built one of the finest of the new houses that were now beginning to line the highway of Holborn almost as far out as St Giles's in the Fields.

This is the first recorded case of smallpox in English. According to the patient's own view, smallpox was not usually a formidable disease, nor does it appear that the Master of the Rolls and four other eminent lawyers (Dr Caldwell, Dr Good, Mr Garth, and Mr Jones) had been apprehensive of catching it. One finds no other evidence of the existence of smallpox in London or elsewhere in England until it is mentioned in a letter of 1591 and in the essay of Kellwaye, 1593, which asserts the occurrence of "smallpox and measles" in almost the same language as Phaer's earlier *Book of Children* and for the most part under the same foreign inspiration. From Scotland we have a single reference in Dr Gilbert Skene's essay on the plague, published in 1568, from the terms of which one may suppose that he is giving his own experience. The season, he

says, will sometimes foretell the plague, as well as other diseases:

"Siclyk quhen pokis or sic pustulis are frequent, not onlie amangis barnis, but also amangis those quha be of constant or declynand aige—greit frequent south and south-vest vyndis." In a similar passage on the previous page he couples "pokis, mesillis and siclike diseisis of bodie[1]."

In a letter of August 26, 1591, written to a member of queen Elizabeth's court, it is said: "Hir Higness wold you should remove from that place where the smalle pocks were, to take the fresh and clere ayre, the better to purge ye from the infection[2]."

In 1593 we come to the first systematic English essay on the disease, appended to the treatise on the plague by Simon Kellwaye[3]. The author is otherwise unknown as a medical writer, but he is commended in a preface by George Baker, a court surgeon, for his "good and zealous intent and sufficiencie in his profession." In appending an essay on smallpox to a treatise on the plague he follows the example of the Salernian treatise of Alphanus, which also affords him most of his systematic materials in both diseases, filtered through Ambroise Paré and other writers. Kellwaye claims, however, to have incorporated native experience: "which work I have collected and drawn from sundry both auncient and later writers, the which being shadowed under the calm shroud of auncient consent and strengthened with the abundant sap of late experience (as well mine own as others) I here present the same." In the treatise on the plague (fol. 2) he mentions smallpox as among the forerunners or prognostics of that disease:

"When the smalle poxe doth generally abound both in young and old people." In the separate essay on the smallpox (fol. 38), its interest is again that of a forerunner or sequel of the plague, according to the foreign teaching of the time:

"For that oftentimes those that are infected with the plague are in the end of the disease sometimes troubled with the smallpockes or measels, as also by good observation it hath been seen that they are forerunners or

[1] Bannatyne Club's reprint, 1840, pp. 9–10.

[2] *The Lesley Manuscripts.* Edited by Kempe. London, 1836, p. 315.

[3] *A Defensative against the Plague.....whereunto is annexed a short treatise of the 'small Poxe, how to govern and help those that are infected therewith.* London, 1593.

warnings of the plague to come, as Salius and divers other writers do testify, I have thought good and as a matter pertinent to my former treatise" etc.

He proceeds: "I need not greatly to stand upon the description of this disease because it is a thing well known unto most people." It begins with a fever; then shortly after there arise small red pustules upon the skin throughout all the body, which come forth more or less intermittently; "In some there arise many little pustules with elevation of the skin, which in one day do increase and grow bigger, and after have a thick matter growing in them, which the Greeks call exanthemata or ecthymata; and after the Latins variola, in our English tongue the smallpockes; and here some writers do make a difference betwixt variola and exanthemata: for, say they, that is called variola when many of those pustules do suddenly run into a clear bladder, as if it had been scalled, but the other doth not so; yet are they both one in the cure." He recognizes the contagious property of the disease, calling it "hereditable:" "For we see when one is infected therewith, that so many as come near him (especially those which are allied in the same blood) do assuredly for the most part receive the infection also." His *Practica* are taken almost entirely from the Arabian writers, as filtered through Gaddesden, one of them being the prevention of pitting by opening the pocks with a gold pin or needle. He had heard, however, "of some which, having not used anything at all, but suffering them to dry up and fall of themselves without picking or scratching, have done very well, and not any pits remained after it." He then refers to complications, such as ulcerations of the skin, soreness and ulcerations of the mouth (*aphthae*), soreness of the tonsils, and glueing together of the eyelids, all of which are stock paragraphs in the foreign writers of the time and are probably transferred from the latter. Also he goes a considerable way towards the separation of measles from smallpox, which was not fully effected in England until the century following: "What the measels or males are:—many little pimples which are not to be seen but only by feeling with the hand are to be perceived; they do not maturate as the pocks doth do, nor assault the eyes" etc.

About ten years after Kellwaye's essay, there began, in 1604, the classification of the deaths in London by the Company of Parish Clerks: but it was not until 1629 that their weekly and annual bills were regularly printed. In the first printed bills, "Flox, smallpox and measles" appear as one entry. The meaning of "flox" seems to be explained by Kellwaye's remark: "And here some writers do make a difference betwixt variola and exanthemata; for, say they, that is called variola when many of those pustules do suddenly run into a clear bladder as if it had been scalled, but the other doth not so." That is the distinction between confluent smallpox and discrete;

and the most probable explanation of "flox" is that it stands for the confluent kind, or for the pustules that run together into a clear bladder.

Smallpox in the 17th Century.

The gradual rise of smallpox to prominence in England about the end of the Elizabethan period and in the first years of the Stuarts cannot fail to strike anyone who is occupied with the English records of disease as a whole. Smallpox and measles may have been, and almost certainly were, observed in England in the earlier part of the 16th century; but they make no such figure in the records, domestic and other, as they do from the beginning of the 17th century onwards. Perhaps the first mention of smallpox, in English literature proper, occurs in a collection of lyrical poems published in 1602[1]. In some verses "Upon his Ladies sicknesse of the Small Pocks," the poet, Th. Spilman, apostrophises the "cruel and impartial sickness" and asks,—

> Are not these thy steps I trace
> In the pure snow of her face?
>
> Th' heavenly honey thou dost suck
> From her rose cheeks, might suffice;
> Why then didst thou mar and pluck
> Those dear flowers of rarest price?

In two letters of Dr Donne, dean of St Paul's, written probably a few years before his death in 1631, reference is made to the smallpox in London. In the one he says:

"At my return from Kent to my gate, I found Peg had the pox: so I withdrew to Prickham and spent a fortnight there. And without coming home, when I could with some justice hope that it would spread no farther amongst them (as I humbly thank God it hath not, nor much disfigured her that had it), I went into Bedfordshire" etc.

[1] Francis Davison's *Poetical Rapsodie*. The poem of Spilman occurs at p. 189 of the edition of 1611. In the piratical edition of 1621, after Davison's death, "small" is left out before "Pocks," and Spilman's name omitted at the foot of the verses. The printer's error has had the singular effect of leading Dr Farmer, the writer on Shakespeare, to conclude that the word "pox" in the Elizabethan period meant smallpox even in imprecations such as "a pox on it."

This dread of smallpox infection is quite unlike anything that we meet with in the earlier 16th-century domestic memorials; in them it is only the infection of the plague that comes in. Donne's other reference is to the sickness of my lord Harrington: "a few days since they were doubtful of him; but he is so well recovered that now they know all his disease to be the pox and measles mingled[1]."

Cases of smallpox among the upper classes are occasionally mentioned in the letters written by Chamberlain to Carleton in the reigns of James I. and Charles I.[2]. On December 17, 1612, "The Lord Lisle hath lost his eldest son, Sir William Sidney, by the smallpox, which were well come out." On December 31, the same year, Carleton, writing from abroad, mentions that the duke of Mantua had died of the smallpox about three weeks since, of which he buried his only son not three weeks before. Also on December 31, Chamberlain writes to him, that the Lady Webbe was sick of the smallpox, of which, he says in another letter, she died: "She was grown a very proper woman, but loved the town too well, which in a short time would have drawn her and her husband dry as well in purse as in reputation." It is the year 1614 that is given (by Horst) as the worst season of smallpox all over Europe and the East; England is mentioned by the foreign writer as among the countries affected, but there is no trace of an epidemic in our own records. On April 20, 1616, Chamberlain mentions the case of the duke of Buckingham, the favourite; "he hath been crazy of late, not without suspicion of the smallpox, which, if it had fallen out, *actum est de amicitia.* But it proves otherwise." Buckingham's illness, for which he took much physic, produced an imposthume on his head (an effect which followed in the more notorious illness of Wolsey), and he is elsewhere said to be suffering from the *morbus comitialis.* The suggestion of smallpox appears to be the same euphemism which was resorted to in the cases of other exalted personages.

On August 21, 1624, having written of the great mortality

[1] Sir Tobie Matthews' *Letters* (1577–1655), London, 1660. (1) Donne to Mrs Cockaine, p. 342; (2) Donne to Sir R. D——, both without date.

[2] *Court and Times of James I.*

from fevers, Chamberlain adds: "Lady Winwood, hearing that her only daughter was fallen sick of the smallpox at Ditton and that they came not out currently," had gone to her. On December 18, 1624, "the Lady Purbeck is sick of the smallpox, and her husband is so kind that he stirs not from her bed's feet." In the first week of June, 1625, the famous composer Orlando Gibbons died at Canterbury, not without suspicion of the plague[1], but according to another opinion of the smallpox[2].

With the year 1629, the causes of death in London began to be published by Parish Clerks' Hall in a rough classification, smallpox being a regular item from year to year. For the first eight years the deaths from "flox, smallpox, and measles" were as follows:

1629	72	1631	58	1633	72	1635	293
1630	40	1632	531	1634	1354	1636	127

The greatest epidemic, it will be seen, was in 1634[3]. For the years 1637–1646, the figures are lost (owing to Graunt's omitting them in his Table of 1662, for want of room). But it is known from letters that the autumn of 1641 was a season of severe smallpox as well as plague. Thus on August 26, "both Houses grow very thin by reason of the smallpox and plague that is in the town, 133 dying here this week of the plague, and 118 of the smallpox, 610 in the whole of all diseases." On September 9, a letter from Charing Cross says: "Died this week of the plague 185, and of the smallpox 101." The plague mortality continues to be mentioned in subsequent letters, but the references to smallpox cease[4]. On July 16, 1642, one excuses his attendance on some State business because he is sick of the smallpox[5].

About the Restoration the references to smallpox become more numerous[6]. A letter of January 4, 1658 (1659), speaks of

[1] *Court and Times of Charles I.* (Chamberlain to Carleton), I. 28.

[2] Anthony Wood.

[3] For Chester also, in the parish register of Trinity Church (Harl. MS. 2177) there is a note opposite 1636: "for this two or three years divers children died of smallpox in Chester."

[4] *Cal. State Papers.* [5] *Ibid.*

[6] *Hist. MSS. Commission*, v. 146, 151, 156, 168, 174, 201. See also the Diaries of Pepys and Evelyn.

"much sickness in the town [London], especially fevers, agues and smallpox." On February 7, 1660, the earl of Anglesey is dead of the smallpox. In September, 1660, Lord Oxford had a severe attack and recovered; at the same time the duke of Gloucester, on the 8th September, was diagnosed by the doctors to have "a disease between the smallpox and the measles; he is now past danger of death for this bout, as the doctors say." However he died on 14th September, in the tenth day of the disease, with remarkable evidences (post mortem) of internal haemorrhage, having bled freely at the nose a few hours before his death. The eruption had "come out full and kindly" at the beginning, so that it was not the ordinary haemorrhagic type. On the 20th December, 1660, the princess Henrietta goes to St James's for fear of the smallpox. On the 16th January, 1660 (? 1661), "the princess is recovered of the measles." Letters from a lady at Hambleton to her husband in London, May 26, 1661, speaks of smallpox raging in the place, and in the house of her nearest neighbour, her own children having the whooping-cough. In the bills of mortality of those years the deaths in London from smallpox and measles were as follows:

1647	139	1652	1279	1657	835	1662	768
1648	401	1653	139	1658	409	1663	411
1649	1190	1654	832	1659	1523	1664	1233
1650	184	1655	1294	1660	354	1665	655
1651	525	1656	823	1661	1246	1666	38

These figures bring us down to the period of Sydenham, who was the first accurate observer of smallpox in London. With his writings, and with those of Willis and Morton, we begin a new era in the history of epidemics in England. We find, for the first time in the history, an adequate discussion of the epidemiological and clinical facts by the ablest men in the profession. But, as the new era is at one and the same time marked by the cessation of plague and by the enormous increase of various fevers, as well as of smallpox, it falls without the limits of this volume, making, indeed, the appropriate beginning of the new kind of epidemic history which is characteristic of England from the Restoration and the Revolution down to the end of the 18th century. It is clear, from the

instances above given, that smallpox was already at the beginning of the 17th century becoming a pest among the upper classes. But to anyone who studies the history over continuous periods it is equally clear that its prominence was then something new and that the horror and alarm which it caused became greater as the 17th century approached its close. And so as not to leave the history of smallpox at this point with a wrong impression of its general virulence, it may be added that Dr Plot, writing of Oxfordshire in 1677, says: "Generally here they are so favorable and kind, that be the nurse but tolerably good, the patient seldom miscarries[1]."

Smallpox in Continental Writings of the 16th century.

It would be beside the purpose of this work to follow the history of smallpox and measles on the continent of Europe. But it will be necessary to say a few words on the contemporary foreign writings upon these diseases, as it is chiefly teaching from a foreign source that we detect in the English authors of the 16th century.

It might be inferred from the classical work of Fracastori[2], published in 1546, that smallpox and measles were frequent and familiar diseases in the author's experience at Verona. At the same time it is clear that even he, original observer as he was, is in places merely repeating the old statements of the Arabian writers. Thus his statement that everyone has smallpox or measles sooner or later, is the old Arabian tradition or experience, usually joined to the explanation that the cause of that universality was the nourishment of the foetus by the retained and impure menstrual blood, so that all children had to free their constitutions of a congenital impurity sooner or later. So far as Fracastori's originality comes in, it is clear that he does not regard smallpox and measles as serious troubles. In his second chapter he says:

"First we must treat of those contagious maladies which, although contagious, are not called pestilential, because, for the most part, they are

[1] *Natural History of Oxfordshire.* Oxford, 1677, p. 23.

[2] *De contagione et contagiosis morbis*, etc. Venet. 1546.

salubrious. Of such are variolae and morbilli. By variolae are understood those which are called also varollae by the common people, from their likeness, I suppose, to the pustules called vari. By morbilli are understood those which the common people style fersae, so-called perhaps from *fervor*. But of these the Greeks do not appear to have treated under any other name than exanthemata. They happen principally in children, rarely in men, most rarely in old people. But they seem to befall all men once in life, or to be apt to befall them unless a premature death removes the individual. In boys the malady is more benign than in adults. For the more part, as already said, they are salubrious, since this ebullition of the blood is something of a purification of the same. It afflicts more or less according to the density of the blood and as the vice is apt or not to be separated from it. If the blood be more pituitous, the pustules are variform, white, round and full of a kind of mucus; but if it be more bilious the pustules break forth more of a dry sort. Where the disease has happened once it is not apt to recur; but there are cases where it has happened more than once."

In the brief account by Fracastori, all the points are stated for measles and smallpox together; and the opinion is twice put forward that an attack was salubrious as purifying the blood or as freeing it from some vice—an opinion which is still popularly held.

It is not until the latter half of the 16th century that we come to real epidemiological records of smallpox on the Continent,—the works by Donatus on smallpox and measles at Mantua in 1567, and by Betera upon epidemics at Brescia in 1570, 1577 and 1588, in which the more malignant types of smallpox were seen[1]. The treatise most used was that of Alphanus, published at Naples in 1577[2]; it was on plague and pestilential fever, with an appendix on smallpox. Either it or Ambroise Paré's chapters seem to have furnished the greater part of the English essay by Kellwaye on the plague and smallpox.

In Ambroise Paré's references to smallpox there occurs one singular line of remark which will serve to bring us back to etymology and to the great pox[3]. The *petite vérole*, he says,

[1] Titles in Häser, III. 383.

[2] *Opus de peste.....necnon de variolis*, Neap. 1577.

[3] *Les œuvres de M. Ambroise Paré*. 5th ed., Paris, 1598, Books XIX. and XX. The chapters on Plague, Smallpox, etc., were originally published, according to Häser, in 1568.

has a resemblance to the *grosse vérole* as sometimes attacking the bones. He had seen that in smallpox cases not only in 1568 but on other occasions: and he gives the details of two cases of smallpox, apparently with periostitis and necrosis, which he compares to cases of the great pox. To express in one word the meaning of such cases, he says, the smallpox and *rougeolle*, not having been well purged, give rise to various troublesome accidents, as the great pox does. One cannot read Paré's chapters on the *grosse vérole* and the *petite vérole* without detecting an inclination to compare them or class them together in nosological characters. The comparison or classification is by no means explicit; but it seems to be in his thoughts, and he would seem, accordingly, to have held until a late period of the 16th century a view of the two diseases which was not unusual at the beginning of that century (as in the treatise of Pinctor and in the accounts of the dreadful mortality of Indians in Hispaniola and Mexico[1]), and was expressed in the popular names given to each disease in France and in England.

[1] See Purchas, *Pilgrimes*, III. 996, where syphilis and smallpox are included together as "infectious or pestilentiall pocks," Ramusio being given as the authority for the smallpox and Oviedo for the great pox.

CHAPTER X.

PLAGUE, FEVER AND INFLUENZA FROM THE ACCESSION OF THE STUART DYNASTY TO THE RESTORATION.

THE last period of plague in England, from 1603 to its extinction in 1666, was as fatal as any that the capital, and the provincial towns, had known since the 14th century. The mortalities in London in 1603, 1625, and 1665 are the greatest in the whole history of the City's epidemics, not, perhaps, relatively to the population, but in absolute numbers. The capital was growing rapidly, having now become the greatest trading community in Europe. The dangers which were foreseen in the proclamation of 1580, of an extension of the City's borders beyond civic control, had been realized. The old walled city, like Vienna down to a quite recent date, remained both the residential quarter and the centre of trade and commerce: the original suburbs, which were in the Liberties or Freedom of the City, were the slums—the fringe of poverty covered by the poorest class of tenements, unpaved and without regular streets, but penetrated by alleys twisting and turning in an endless maze. The City was not, indeed, without a good deal of building of the same class, especially in the parish of St Stephen, Coleman Street, the most populous parish within the walls. But what was an occasional thing in the City where gardens and other open spaces had been built upon, was the rule in the parishes beyond the walls. It was in the Liberties and outparishes that the plague of 1603 began; its origin in 1625 is

less certain; but there can be no question as to the gradual progress of the Great Plague of 1665 from the west end of the town down Holborn and the Strand to the City, to the great parishes on the north-east and east, and across the water to Southwark. From one point of view we may represent the later plagues as incidents in the transition from the medieval to the modern state of the capital—a transition which proceeded slowly and is still unfinished so far as concerns the forms of municipal government. The history of the public health of London is, for nearly two centuries, the history of irregular and uncontrolled expansion, of the failure of old municipal institutions to overtake new duties. Perhaps if Wren's grand conception of a New London after the fire of 1666 had been taken up and given effect to by Charles II., the Liberties and suburbs might have been joined more organically to the centre and have benefited by the municipal traditions of the latter. The history of the public health in London during the latter part of the 17th century and the whole of the 18th might in that case have been a less melancholy record. That history falls within our next volume; but as it began with the expansion of London under Elizabeth and the Stuarts, this is the place to review the growth of the City from the time when it broke through its medieval limits.

The Growth of London in the Tudor and Stuart Periods[1].

The accession of James I. to the English crown in 1603 corresponds in time with the pretensions of London to be the first city in Europe. "London," says Dekker, in *The Wonderfull Yeare*, "was never in the highway to preferment till now. For she saw herself in better state than Jerusalem, she went more gallant than ever did Antwerp, was more courted by amorous and lustie suitors than Venice (the minion of Italy); more lofty towers stood about her temples than ever did about the beautiful forehead of Rome; Tyre and Sydon to her were like two thatcht

[1] For details of the increase of London population, with the sources of evidence, I beg to refer to my essay, "The Population of Old London," *Blackwood's Magazine*, April, 1891.

houses to Theobals, the grand Cairo but a hogsty." That is, of course, in Dekker's manner; but it can be shown by figures that London took a great start in the end of Elizabeth's reign and grew still faster under James.

From Richard I. to Henry VII., London was the medieval walled city, as Drayton says, "built on a rising bank within a vale to stand," with a population between 40,000 and 50,000. Without the walls lay a few city parishes or parts of parishes, including the three dedicated to St Botolph outside Aldgate, Bishopsgate and Aldersgate, respectively, and St Giles's without Cripplegate, all of these being at the gates or close to the walls. On the western side, however, lay an extensive but sparsely populated suburb, which was erected in 1393 into the Ward of Farringdon Without; it extended westward from the city wall as far as Temple Bar, Holborn Bars and West Smithfield, and was divided into the four great parishes of St Sepulchre's without Newgate, St Andrew's, on the other side of Holborn valley, St Dunstan's in the West (about Chancery Lane and Fetter Lane), and St Bride's, Fleet Street.

The earliest known bills of mortality, in 1532 and 1535, from which a population of some 62,400 might be deduced, show that the St Botolph parishes, St Giles's without Cripplegate and the four great parishes in the western Liberties (or, more correctly, in the ward of Farringdon Without) had one-third of the whole deaths, and presumably about one-third of the whole population. In the few memoranda left of the plague-bills of 1563, we find evidence that the population had increased to some 93,276, of which about a sixth or seventh part, or some 12,000 to 15,000 was in the "out-parishes," or in the parishes not only beyond the walls, but beyond the Bars of the Freedom. The most valuable series of statistics for Elizabethan London are those which give the christenings and burials for five years from 1578 to 1582; from those of the year 1580, which was almost free from the disturbing element of plague, a population of some 123,034 may be deduced by taking the birth-rate at 29 per 1000 living and the death-rate at 23 per 1000, or in each case at a favourable rate corresponding to the large excess of births over deaths.

There is not enough left of the introduction to these old manuscript abstracts of weekly births and deaths to show how many parishes they relate to, or what is the proportion for each division of the capital. But, as the earlier series of bills of mortality from 1563 to 1566 included the City, the Liberties and the out-parishes, it is probable that the series from 1578 to 1582 had done the same. The crowding of the Liberties with a poor class of tenements, and the extension of the out-parishes, are otherwise known from the preamble to the proclamation of 1580, which prohibited all building on new sites within three miles of the City wall. The next figures are for the years 1593, 1594, and 1595, which show a population increased to about 152,000.

From the figures of the plague-year, 1593, it appears that the mortality within the walls, both from plague and from ordinary causes, had now become the smaller half, or somewhat less than that "without the walls and in the Liberties,"—a phrase which is used loosely, even in some official bills, for both Liberties and suburbs. In 1604 we have the exact proportions of deaths in the City, in the Liberties and in the out-parishes respectively:

	96 parishes within walls	16 parishes in Liberties	8 parishes out of the Freedom	Total
All deaths	1798	2465	956	5219
Plague deaths	280	368	248	896
Christenings	—	—	—	5458

The sixteen parishes of the Liberties are now decidedly ahead of the ninety-six old City parishes, while the eight out-parishes have some 18 per cent of the whole mortality. The population is best reckoned from the 6504 baptisms of the year after, 1605, by which time the disturbance of the enormous mortality in 1603 had ceased to be felt; at a birth-rate of 29 per 1000, the population would be some 224,275. The proportions in 1605, from the bills of mortality for the year, are 33·8 per cent. in the City, 50 per cent. in the Liberties, and 16·2 per cent. in the out-parishes; so that the City would have contained in that year about 76,000, the Liberties about 114,000, and the out-parishes about 37,000. To those numbers we should have to

add some 20,000 or 30,000 for Westminster, Stepney, Lambeth, Newington, etc.

According to Graunt's contemporary estimate for 1662, the population had grown to 460,000, or to rather more than double that of 1605; and whereas the proportion in 1605 was two-sixths in the City, three-sixths in the Liberties and one-sixth in the out-parishes, he makes it in 1662 to have been one-fifth in the City, three-fifths in the Liberties (including Southwark) and the out-parishes nearest to the Bars, and one-fifth in the out-parishes of Stepney, Redriff, Newington, Lambeth, Islington and Hackney, with the city of Westminster. Thus, whereas in 1535 the City had two-thirds of the whole estimated population, in 1662 it had one-fifth; but with its one-fifth in 1662 it was twice as crowded as with its two-thirds in 1535, the comparatively open appearance given to it by gardens in various localities, as on Tower Hill, having entirely gone.

As early as the plague of 1563, the Liberties were observed to be first infected, and to retain the infection longest; that is alleged of St Sepulchre's parish by Dr John Jones, from personal knowledge. The history of the plague of 1593 is imperfectly known; but it is clear from Stow's summation of the deaths during the year, that more died of plague in the Liberties and suburbs than in the City. Of the next plague, that of 1603, we know that it did begin in the Liberties and was prevalent in those skirts of the City for some time before it entered the gates. "Death," says *The Wonderfull Yeare*, "had pitcht his tents in the sinfully polluted suburbs...the skirts of London were pitifully pared off by little and little; which they within the gates perceiving," etc. Then the plague, represented as an invading force, "entered within the walls and marched through Cheapside," the wealthier inhabitants having escaped meanwhile.

The London Plague of 1603.

The most useful document for the London plague of 1603 is a printed Bill of Mortality which is in the Guildhall Library. The bill, which is in the form of a broadside, is for the week

13–20 October, and purports to be a true copy, according to the report made to the king by the Company of Parish Clerks, and printed by John Winder, printer to the honourable City of London[1]. It is necessary to be thus particular, because the clerk of the Company of Parish Clerks in the end of 1665 (between the Plague and the Fire) published an account of all the statistics of former plagues preserved in his office, and emphatically denied that the Parish Clerks gave in an accompt for the year 1603; they did not resume their series after 1595, he says, until 29th December, 1603. But the clerk was mistaken, as even the most prim of officials will sometimes be. The printed bill which has come down to us gives the usual weekly return of deaths from all causes in one column and those from plague in another, for each of the 96 parishes within their walls, each of the 16 parishes in the Liberties and each of 8 out-parishes. On the right hand margin it gives also a summary statement of the deaths in "the first great plague in our memory" that of 1563, which is the same as in Stow's *Annales*, and of the deaths in the next great plague, that of 1593, which differs considerably from Stow's. It then goes on to give the sum of the figures of the year 1603 from 17th December, 1602, and carries the deaths per week from 21st July down to date, the 20th of October, adding some information for the parishes which kept separate bills, namely, Westminster, the Savoy, Stepney, Newington Butts, Islington, Lambeth and Hackney. This extant weekly bill was probably one of a series; for Graunt, in his book of 1662, cites various figures of weekly baptisms throughout the year 1603 which would appear to have been taken from the bills for the respective weeks. But the returns had not been made regularly from all the parishes within the Bills from the beginning of the year 1603. The reason why the weekly figures are not recapitulated farther back than the week ending July 21, is that the outparishes had not sent in their returns until that week. From another source, we know the figures for the City and Liberties from March 10 to July 14, and from the same source we obtain the totals for all parishes within the Bills from

[1] Broadside in the Guildhall Library, bound up in a volume labelled *Political Tracts*, 1680.

October 19 to the end of the year. By putting these figures into one table, we may represent the mortality of 1603, not indeed completely, as follows:

Weekly Mortalities in London during the plague of 1603.

Week ending	City and Liberties.		Out parishes.		Totals.	
	All causes.	Plague.	All causes.	Plague.	All causes.	Plague.
March 17	108	3				
24	60	2				
31	78	6				
April 7	66	4				
14	79	4				
21	98	8				
28	109	10				
May 5	90	11				
12	112	18				
19	122	22				
26	112	30				
June 2	114	30				
9	134	43				
15	144	59				
23	182	72				
30	267	158				
July 7	445	263				
14	612	424				
21	867	646	319	271	1186	917
28	1312	1025	398	354	1710	1379
Aug. 4	1700	1439	537	464	2237	1901
11	1655	1372	410	361	2065	1733
18	2486	2199	568	514	3054	2713
25	2343	2091	510	448	2853	2539
Sept. 1	2798	2495	587	542	3385	3037
8	2583	2283	495	441	3078	2724
15	2676	2411	433	407	3109	2818
22	2080	1851	376	344	2456	2195
29	1666	1478	295	254	1961	1732
Oct. 6	1528	1367	306	274	1834	1641
13	1109	962	203	184	1312	1146
20	647	546	119	96	766	642
27					625	508
Nov. 3					737	594
10					545	442
17					384	257
24					198	105
Dec. 1					223	102
8					163	55
15					200	96
22					168	74

These figures may be accepted as real, so far as they go; and they give a total (37,192 from all causes, whereof of the plague, 30,519) which is nearly the same as that usually taken, *e.g.* by Graunt, for the mortality of the whole year in all London (37,294 from all causes, whereof of the plague, 30,561). But it is clear that important additions have to be made. In the first place, no deaths are included for the weeks previous to March 10. In the second place, no deaths are included from the out-parishes (within the Bills), previous to July 14. In the third place, no deaths at all are included from Westminster, Stepney, Newington, Lambeth, etc. These omissions have to be kept in mind when the plague of 1603 is compared with those of 1625 and 1665, for which the figures are fully ascertained; and we possess various data from which to supply them approximately. One great addition, with nothing conjectural in it, is for the seven parishes outside the general bill of mortality, Stepney being the largest: they kept their own bills, and the figures from them, for the principal part of the year, are given on the margin of the broadside, as quoted below[1]. Another unconjectural addition is the mortality from all causes in the City and Liberties from December 17, 1602, to March 10, 1603, which was 1375, having been mostly non-plague deaths. All these deaths, actually known, bring the total for the year up to 42,945 whereof of the plague about 33,347. The farther

[1] "The time when it began in the City of Westminster and these places following:

"Buried in Westminster from 14 July to 20 October, in the whole number 832, whereof of the plague 723. Buried in the Savoy from the 1st of June to the 20th of October, in the whole number 182, whereof of the plague, 171. Buried in the parish of Stepney from the 25th of March to the 20th of October, in all 1978, whereof of the plague, 1871. Buried at Newington-buts from the 14th of June to the 20th of October, in all 626, whereof of the plague, 562. Buried at Islington 201 in all, 170 of plague; at Lambeth 373 in all, 362 of plague; at Hackney 192 in all, 169 of plague. Buried in all within the 7 several places last aforenamed 4378, whereof of the plague, 3997. The whole number that hath been buried in all [to 20th October], both within London and the Liberties, and the 7 other severall places last before mentioned is 39,380, whereof of the number of the plague, 32,609."

From the parish registers the burials for the whole year are known: Stepney, 2257; Lambeth, 566; Islington, 322; Hackney, 321 (of plague 269).

In Stow's *Annales*, the mortality of 1603 is given as follows:—"There died in London and the liberties thereof from the xxiii day of December 1602 unto the xxii day of December 1603, of all diseases 38,244, whereof of the plague 30,578."

additions, which can only be guessed, are the mortality from all causes in the eight out-parishes (within the Bills) previous to July 14, and the mortality in the seven other suburban localities (Westminster, Stepney, etc.) before and after the dates stated in the note for each. Only the former of these additions would have been a considerable figure, the plague being already at 271 deaths a week when the reckoning begins. Thus the totals, 42,945 burials from all causes, and from plague alone, 33,347, are well within the reality.

Some details are extant of the incidence of the disease in particular parishes at certain dates. Thus, in the great parish of Stepney, which extended from Shoreditch to Blackwall, 650 plague-deaths, and 24 from other causes, took place in the single month of September; so that, if the plague began in Stepney about the 25th of March, it had not come to a head until autumn. In St Giles's Cripplegate, the burials entered in the parish register for the whole year are 2879, the highest mortality having been in the beginning of September, when the burials on three successive days were 36, 26 and 26[1]. In the week 13 to 20 October, for which the printed bill is extant, the proportions of the City, Liberties and 8 out-parishes respectively were, for the week, 351, 296, and 119. Of the parishes without the walls, the most infected were, in their order at that date, St Sepulchre's, St Saviour's, Southwark, St Andrew's, Holborn, St Giles's, Cripplegate, St Clement's Danes, St Giles's in the Fields, St Olave's, Southwark, St Martin's in the Fields, St Mary's, Whitechapel and St Leonard's, Shoreditch. For St Olave's, Southwark, we have some particulars of the plague from the minister of the parish.

In a dialogue conveying various instructions on the plague[2], to his parishioners of St Olave's, James Bamford states that 2640 had died in that parish from May 7 to the date of writing (October 13), and that the burials had fallen from 305 in a week to 51, and from 57 in a day to 4. St Olave's was a typical parish of the new London. It extended eastwards along the

[1] Baddeley, *l. c.*

[2] *A short Dialogue concerning the Plague Infection.* Published to preserue Bloud through the blessing of God.' London, 1603.

Surrey bank of the river from London Bridge, and had been almost all built within the half-century since the purchase of the Borough of Southwark by the City from the Crown in 1550. In Stow's *Survey* of 1598 the parish is thus described: "Then from the bridge along by the Thames eastward is St Olave's Street, having continual building on both the sides, with lanes and alleys, up to Battle Bridge, to Horsedown and towards Rotherhithe some good half mile in length from London Bridge"—the Bermondsey High Street running south from the Horsleydown end of it. St Olave's Church, he continues, stood on the bank of the river, "a fair and meet large church, but a far larger parish, especially of aliens or strangers, and poor people." A mansion of former times, St Leger House, was now "divided into sundry tenements." Over against the church, the great house that was once the residence of the prior of Lewes, was now the Walnut Tree inn, a common hostelry.

London was now so extensive in area that it becomes of interest to know in what part of it the plague broke out, and in what course the infection proceeded. These things are known for the plague of 1665; but for that of 1603 they cannot be ascertained precisely. Dekker is emphatic that it began in the suburbs. The earliest reference to it in the State papers is under the date of April 18, when the Lord Mayor wrote to the Lord Treasurer to inform him of the steps taken to prevent the spread of the plague in the counties of Middlesex and Surrey. "The parishes in Middlesex and Surrey" was an expression which afterwards came to mean a group of twelve out-parishes beyond the Bars of the Freedom, including St Giles's in the Fields, Lambeth, Newington and Bermondsey, Stepney, Whitechapel, Shoreditch and Clerkenwell, Islington, Hackney and two others. The phrase used by the mayor may not have had so definite a meaning in 1603, but he can hardly have intended it to apply to the City and Liberties of London, although those were the only divisions of the capital directly under his own jurisdiction. The parish which is associated with the earliest date, in the summary of the epidemic in the broadside of 1603, is Stepney, where the record of deaths from plague and other causes begins from 25th March. It would

perhaps be safe to conclude that the plague of 1603 began at the extreme east in Stepney, as that of 1665 certainly did at the extreme west in St Giles's in the Fields.

An examination of the Table shows that the eight out-parishes had reached a higher plague mortality relative to their population on July 21, than the parishes within the bars of the Freedom: but the maximum of deaths falls in both divisions about the same week. We may take it that the plague broke out in one of the suburbs; and as Dekker speaks of the flight having been westwards, the evidence points on the whole to an eastern suburb, perhaps Whitechapel or Stepney. March is clearly indicated by various things as a time when plague-deaths began to attract notice; and that date of commencement is corroborated by the following passage from the essay of Graunt, based, it would seem, upon a series of weekly bills:—

"We observe as followeth, viz. First, that (when from December 1602 to March following there was little or no plague) then the christenings at a medium were between 110 and 130 per week, few weeks being above the one or below the other; but when the plague increased from thence to July, that then the christenings decreased to under 90.... (3) Moreover we observe that from the 21st July to the 12th October, the plague increasing reduced the christenings to 70 at a medium. Now the cause of this must be flying, and death of teeming women" &c.—the total christenings of the year 1603 having been only 4789, as against some 6000 in the year before the plague, and 5458 in the year after it.

This prevalence of plague in the suburbs and liberties of the City in the spring of 1603 coincides with great political events. Queen Elizabeth died at Richmond on the 24th of March, and was buried at Westminster on the 28th of April; according to Dekker, "never did the English nation behold so much black worn as there was at her funeral." The approach of king James from Scotland appears to have caused an outburst of gaiety, his accession to the crown, according to the same writer, having led to a marked revival of trade: "Trades that lay dead and rotten started out of their trance....There was mirth in everyone's face, the streets were filled with gallants, tabacconists

filled up whole taverns, vintners hung out spick and span new ivy-bushes (because they wanted good wine), and their old rain-beaten lattices marched under other colours, having lost both company and colour before." James made a slow progress from Scotland, paying visits on the way. He arrived at Theobalds, near Cheshunt, on the 3rd of May, and was at Greenwich before the end of the month. On May 29, a proclamation was issued commanding gentlemen to depart the court and city on account of the plague. On June 23, the remainder of Trinity law term was adjourned. On July 10, a letter (one of the series between J. Chamberlain and Dudley Carleton) says: "Paul's grows very thin [the church aisles where people were wont to meet to exchange news], for every man shrinks away. Our pageants are pretty forward, but most of them are such small-timbered gentlemen that they cannot last long, and I doubt, if the plague cease not sooner, they will riot and sink where they stand." The Coronation was shorn of its full splendour. On July 18, it was announced that, as the king could not pass through the City—the traditional route being from the Tower to Westminster—all the customary services by the way are to be performed between Westminster Bridge and the Abbey. The ceremony, thus shortened, took place on July 25. On August 8, it was ordered that all fairs within fifty miles of London should be suspended, the more important being Bartholomew fair at Smithfield, and Stourbridge fair near Cambridge. The new Spanish ambassador was unable to approach the king, who moved from place to place,—Hampton Court, Woodstock and Southampton.

These are the traces left by this great epidemic in the state papers of the time. As in the case of the sweating sickness of 1485, which was in London while the preparations were going on for Henry VII.'s coronation, we should hardly have known from public documents that the City was in a state of panic. But in 1603 we are come to a period when other sources of information are available. It remains to put together what descriptions have come down to us of the City of the Plague.

The most graphic touches are those left by Thomas Dekker, the dramatist, of whom it has been said that "he knew London

as well as Dickens[1]." To describe first the condition of the "sinfully polluted suburbs," he takes a walk through the still and melancholy streets in the dead hours of the night. He hears from every house the loud groans of raving sick men, the struggling pangs of souls departing, grief striking an alarum, servants crying out for masters, wives for husbands, parents for children, children for their mothers. Here, he meets some frantically running to knock up sextons; there, others fearfully sweating with coffins, to steal forth dead bodies lest the fatal handwriting of death should seal up their houses. This would have been an evasion of the order, dating from 1547, that no bodies were to be buried between six in the evening and six in the morning—an order which was exactly reversed in the plague of 1665.

When morning comes, a hundred hungry graves stand gaping, and everyone of them, as at a breakfast, hath swallowed down ten or eleven lifeless carcases; before dinner, in the same gulf are twice so many more devoured, and before the sun takes his rest these numbers are doubled,—threescore bodies lying slovenly tumbled together in a muck-pit[2]! One gruesome story he tells of a poor wretch in the Southwark parish of St Mary Overy, who was thrown for dead upon a heap of bodies in the morning, and in the afternoon was found gasping and gaping for life. Others were thrust out of doors by cruel masters, to die in the fields and ditches, or in the common cages or under stalls. A boy sick of the plague was put on the water in a wherry to come ashore wherever he could, but landing was denied him by an army of brown-bill men that kept the shore, so that he had to be taken whence he came to die in a cellar. The sextons made their fortunes, especially those of St Giles's, Cripplegate, of St Sepulchre's, outside Newgate, of St Olave's

[1] *The Wonderfull Yeare* 1603, *wherein is shewed the picture of London lying sicke of the Plague.* London, 1603.

[2] In his *Seven Deadly Sins of London* (1606) he returns to the mode of burial in the plague: "All ceremonial due to them was taken away, they were launched ten in one heap, twenty in another, the gallant and the beggar together, the husband saw his wife and his deadly enemy whom he hated within a pair of sheets." As an after effect of this mode of interment, "What rotten stenches and contagious damps would strike up into thy nostrils!"

in Southwark, of St Clement's at Temple Bar, and of Stepney. Herb-wives and gardeners also prospered; the price of flowers, herbs, and garlands rose wonderfully, insomuch that rosemary, which had wont to be sold for twelve pence an armful, went now for six shillings a handful.

While plague was thus raging in the poor skirts of the City, "paring them off by little and little," the well-to-do within the walls took alarm and fled, "some riding, some on foot, some without boots, some in slippers, by water, by land, swarm they westwards. Hackneys, watermen and waggons were not so terribly employed many a year; so that within a short time there was not a good horse in Smithfield, nor a coach to be set eyes on." But they might just as well have remained as trust themselves to the "unmerciful hands of the country hard-hearted hobbinolls." The sight of a Londoner's flat-cap was dreadful to a lob: a treble ruff threw a whole village into a sweat. A crow that had been seen on a sunshiny day standing on the top of Powles would have been better than a beacon on fire, to have raised all the towns within ten miles of London for the keeping her out. One Londoner set out for Bristol, thinking not to see his home again this side Christmas. But forty miles from town the plague came upon him, and he sought entrance to an inn. When his case was known, the doors of the inn "had their wooden ribs crushed to pieces by being beaten together; the casements were shut more close than an usurer's greasy velvet pouch; the drawing windows were hanged, drawn, and quartered; not a crevice but was stopt, not a mouse-hole left open." The host and hostess tumbled over each other in their flight, the maids ran out into the orchard, the tapster into the cellar. The unhappy Londoner was helped by a fellow-citizen who appeared on the scene, and was carried to die on a truss of straw in the corner of a field; but the parson and the clerk refused him burial, and he was laid in a hole where he had died. According to Stow, Bamford, and Davies of Hereford, such experiences of fugitive Londoners were repeated everywhere in the country, and Dekker gives several other tales of the same sort "to shorten long winter nights."

Meanwhile, Dekker goes on, the plague had entered the gates

of the City and marched through Cheapside; men, women, and children dropped down before him, houses were rifled, streets ransacked, rich men's coffers broken open and shared amongst prodigal heirs and unworthy servants. Every house looked like St Bartholomew's Hospital and every street like Bucklersbury: ("the whole street called Bucklersbury," says Stow, "on both sides throughout is possessed of grocers, and apothecaries towards the west end thereof"), for poor Mithridaticum and Dragon-water were bought in every corner, and yet were both drunk every hour at other men's cost. "I could make your cheeks look pale and your hearts shake with telling how some have had eighteen sores at one time running upon them, others ten or twelve, many four and five; and how those that have been four times wounded by this year's infection have died of the last wound, while others, hurt as often, are now going about whole." Funerals followed so close that three thousand mourners went as if trooping together, with rue and wormwood stuffed into their ears and nostrils, looking like so many boars' heads stuck with branches of rosemary. A dying man was visited by a friendly neighbour, who promised to order the coffin; but he died himself an hour before his infected friend. A churchwarden in Thames Street, on being asked for space in the churchyard, answered mockingly that he wanted it for himself, and he did occupy it in three days.

One more extract from Dekker will bring us back to the strictly medical history:

"Never let any man ask me what became of our Phisitions in this massacre. They hid their synodical heads as well as the proudest, and I cannot blame them, for their phlebotomies, losinges and electuaries, with their diacatholicons, diacodions, amulets and antidotes, had not so much strength to hold life and soul together as a pot of Pinder's ale and a nutmeg. Their drugs turned to durt, their simples were simple things. Galen could do no more good than Sir Giles Goosecap. Hippocrate, Avicen, Paracelsus, Rasis, Fernelius, with all their succeeding rabble of doctors and water-casters, were at their wits' end; for not one of them durst peep abroad."

Only a band of desperadoes, he goes on, some few empirical madcaps—for they could never be worth velvet caps—clapped their bills upon every door. But besides the empirical desperadoes, who dared the infection for the sake of the golden

harvest, some few physicians and surgeons remained at their post, or at least put out essays with prescriptions and rules of regimen. Three such books on the plague were published in London in 1603, of which the most notable was one by Dr Thomas Lodge[1], a poet like Dekker himself, but of the academical school to which Dekker did not belong. The passage quoted about the impotence of the faculty is perhaps aimed at these books, which all abound with the sayings and maxims of Hippocrates, Galen, Avicenna, and the like, Lodge also quoting the more obscure name of Fernelius, which Dekker has not failed to seize upon.

Lodge confirms the statement about the empirical desperadoes clapping their bills upon every post. One of them, "who underwrit not his bills," posted them close to Lodge's house in Warwick Lane, so that the physician was taken by the populace to be himself the advertiser. He was besieged with applicants for his cordial waters, and wrote his book to make his own position clear, being "aggrieved because of that loathsome imposition which was laid upon me to make myself vendible (which is unworthy a liberal and gentle mind, much more ill-beseeming a physician and philosopher), who ought not to prostitute so sacred a profession so abjectly." Farther confirming Dekker about the greed of the quacks as well as about the strictly business-like attitude of the regular profession, he speaks of "my poor countrymen left without guide or counsel how to succour themselves in extremity; for where the infection most rageth, there poverty reigneth among the commons, which, having no supplies to satisfy the greedy desires of those that should attend them, are for the most part left desolate to die without relief." The reader must wonder, he says, "why, amongst so many excellent and learned physicians of this city, I alone have undertaken to answer the expectation of the multitude, and to bear the heavy burthen of contentious critiques and depravers." The explanation was that the regular faculty had for the most part gone out of town, along with

[1] *A Treatise of the Plague.* By Thomas Lodge, Doctor in Phisicke. London, 1603. It has been reprinted, among Lodge's other works, by the Hunterian Club of Glasgow; 1880.

magistrates, ministers and rich men. Bamford, the minister of St Olave's, Southwark, who remained at his post, has no excuse to offer for magistrates or for his clerical brethren, but he is extremely fair to the doctors: "As for physicians, I only propound this question: Whether they be bound in conscience to be resident, in regard of their profession and ability to do good, or they may use their liberty for themselves and (as they think) for their lives, in regard they are no public persons and live (not by a common stipend but) by what they can get."

Dr Lodge, who dated his book from Warwick Lane on August 19, or when the epidemic would have been at its height, had already won laurels in the field of poetry and romance. He was an Oxonian (Trinity College, 1573) and one of a set with Marlowe and Greene. "At length his mind growing serious," says Anthony Wood, "he studied physic," travelling abroad for the purpose and graduating M.D. at Avignon. He had great success in practice, especially among Catholics, to whom he was suspected of belonging. He died of the plague, during the next great epidemic of 1625, at Low Leyton in Essex. His book on the plague would be entitled to a place in medical literature if only that its style is above the average of medical compositions. I cannot forbear quoting the following collect for its structure and euphony:

"But before I prosecute this my intended purpose, let us invocate and call upon that divine bounty, from whose fountain head of mercy every good and gracious benefit is derived, that it will please him to assist this my labor and charitable intent, and so to order the scope of my indevour, that it may redound to his eternal glory, our neighbours' comfort, and the special benefit of our whole country; which, being now under the fatherly correction of Almighty God, and punished for our misdeeds by his heavy hand, may through the admirable effects and fruits of the sacred art of physic, receive prevention of their danger, and comfort in this desperate time of visitation. To him therefore, King of kings, invisible and only wise, be all honor, majesty and dominion, now and for ever. Amen."

It is only in dealing with the more public aspects of the plague that Lodge shows any individuality. So far as concerns causes, prognostications, symptoms, remedies, preventives, and precautions, there is little in his essay which is not to be found in the older plague-books, such as the 14th century one of the

bishop of Aarhus, his anatomical directions for blood-letting being word for word the same as the bishop's. Some of his points are the same as in Skene's Edinburgh essay of 1568, such as the indication of plague about to begin which is got from rats, moles and other underground creatures forsaking their holes. To keep off the infection he advises the wearing of small cakes of arsenic in the armpits, where the buboes usually came. That Paracelsist practice is known to have been tried at Zurich in 1564; it was one of the matters of dispute between the Galenists and the chemical physicians. During the plague of 1603, Dr Peter Turner published a curious tract in defence of it[1].

From a Venetian gentleman Lodge obtained also the formula of a preservative from infection, which contained, among other things, tormentilla root, white dittany, bole Armeniac and oriental pearl: "The gentleman that gave me this assured me that he had given it to many in the time of the great plague in Venice, who, though continually conversant in the houses of those that were infected, received no infection or prejudice by them."

In his chapter on "The Order and Police that ought to be held in a City during the Plague-time," he advises the removal of the shambles from within the walls to some remote and convenient place near the river of Thames, to the end that the blood and garbage of beasts that are killed may be washed away with the tide. Lodge lived just on the other side of Newgate Street from the shambles, and could speak feelingly about them, as many more had done since Edward III.'s time. The nobles of Arles, he says, had acted so on the advice of

[1] *The opinion of Peter Turner, Doctor in Physicke, concerning Amulets or Plague-Cakes, whereof perhaps some hold too much and some too little.* London, 1603, p. 10. Turner held high offices at the College of Physicians, and died in 1614. There was another physician of the name, also a dignitary of the College, Dr George Turner, whose widow was the notorious Mrs Anne Turner, executed for having been an instrument in the poisoning of Sir T. Overbury. Scott has drawn from her the character of Mrs Suddlechop, in *The Fortunes of Nigel*, a work invaluable for realizing the London of King James. The reference in the Earl of Northumberland's accounts, under date Feb. 6, 1607, to a Dr Turner, who was paid ten shillings for a "pomander" against the plague, would suit either Dr Peter or Dr George (*Hist. MSS. Commis.* VI. 2, 29).

Valenolaes, having built their slaughter-houses to the westward of the city upon the river of Rhone. The chief interest of the book is in the sections on preventing the spread of infection. He quotes an instance from Alexander Benedetti of Venice, of a feather-bed, slept on by one in the plague, having been laid aside for seven years, "and the first that slept upon the same at the end of the same term was suddenly surprised with the plague." His directions for the cleansing of houses, bedding, clothes, &c. are minute and thorough (Chapter XVII.)[1]. Modern readers will find his views on isolation and compulsory removal to hospital worth noting. The Pest House, which had been lately built in the fields towards Finsbury, was then the only special hospital to which patients in the plague could be removed, and its accommodation was not great; the burials at it in the nine weeks from July 21 to September 22, 1603, were respectively 18, 18, 12, 21, 12, 6, 5, 10 and 10. The Bridewell near Fleet Street appears also to have admitted a small number of plague-cases, the burials from it in the five weeks from August 18 to September 22, having been respectively 8, 5, 17, 7 and 19. There was also a pest-house in Tothill fields, for the Westminster end of the town. Servants appear to have been mostly sent to these refuges. Lodge saw that the principle of compulsory removal of the sick had no chance without more hospital accommodation (as Defoe also insisted in reviewing the plague of 1665), and he proposes a plan for a pest-house with "twenty-eight to thirty separate chambers on the upper floor, and as many beneath." He is humanely alive to the hardships of compulsory isolation:

"For in truth it is a great amazement, and no less horror, to separate the child from the father and mother, the husband from his wife, the wife from her husband, and the confederate and friend from his adherent and friend; and to speak my conscience in this matter, this course ought not to be kept before that, by the judgment of a learned physician, the sickness be resolved on. And when it shall be found it is infectious, yet it is very needful to use humanity towards such as are seized. And if their parents or friends have the means to succour them, and that freely, and with a good heart they are willing to do the same, those that have the charge to carry them to the

[1] A letter from Hampstead, August 27, 1603, speaks of "the imprudent exposure of infected beds in the streets." (*Cal. State Papers.*)

pest-house ought to suffer them to use that office of charity towards their sick, yet with this condition that they keep them apart and suffer them not to frequent and converse with such as are in health. For, to speak the truth, one of the chiefest occasions of the death of such sick folks (besides the danger of their disease) is the fright and fear they conceive when they see themselves devoid of all succour, and, as it were, ravished out of the hands of their parents and friends, and committed to the trust of strangers....And therefore in this cause men ought to proceed very discreetly and modestly."

Another London essay of the same year, by "S. H. Studious in Phisicke" is a much slighter production. The author writes in a superior strain and offers advice "unto such Chirurgeons as shall be called or shall adventure themselves to the care of this so dangerous sickness," one piece of advice being not to let blood except at the beginning of the seizure, and to take then five ounces of blood in the morning, and three ounces more at three in the afternoon, repeating the depletion next day at discretion. He states also the theory of the plague-bubo: it was a way made by nature to expel the venomous and corrupt matter which is noisome unto it. He advises the practice of incising the bubo and of helping it to suppurate, which was the treatment in the Black Death of 1348–49: if nature be "weak and not able to expel the venom fast enough, by insensible transpiration the venom returneth back to the heart and so presently destroyeth nature[1]."

It is significant of the state of medical practice and literature in England at the end of the Elizabethan period that the only other treatise which the plague of 1603 is known to have called forth was a mystification[2] under the name of one Thomas Thayre, chirurgian, "for the benefite of his countrie, but chiefly for the honorable city of London," elaborately dedicated to the Lord Mayor of the year (by name), the Sheriffs and the Aldermen, to whom "Thomas Thayre wisheth all spirituall and temporal blessings." It proves on examination to be a very close reproduction, with some omissions at the end and a

[1] *A New Treatise of the Pestilence, etc. the like not before this time published, and therefore necessarie for all manner of persons in this time of contagion.* By S. H. Studious in Phisicke. London, 1603.

[2] This mystification was pointed out in a note to "Thayre" (the 1625 edition) in the printed Catalogue of the Library of the Royal Medical and Chirurgical Society.

few additions, of the old Treatise of the Pestilence by Thomas Phayre or Phaer, first published in 1547, and was probably the venture of some bookseller or literary hack. The original treatise of Phayre had been reprinted last in 1596, "latelye corrected and enlarged by Thomas Phayre," although that writer must have been dead many years. A reprint of some of "Dr Phaer's" remedies and preservatives, without date, is conjecturally assigned to the year 1601. The original work of Henry VIII.'s time was also a literary compilation, in some parts copied verbatim from the 14th century book by the Danish bishop of Arusia, and bears not a trace of first-hand observation. Yet it had the fortune to be reprinted once more, in 1722, by a physician W. T., who remarked that, as the writers on plague in his own time "usually transcribe from others," he wished to set before them a specimen "of such as have written on a disease of which they were eye-witnesses."

Two printed addresses on the plague by London ministers are extant: one by Henoch Clapham, "to his ordinary hearers," which is merely a sermon, in the form of an epistle, to improve the occasion[1]; and the other by James Bamford, rector of St Olave's, Southwark, in the form of a dialogue, and full of practical and sensible advice[2]. Bamford's tract is especially directed against "that bloody error which denieth the pestilence to be contagious; maintained not only by the rude multitude but by too many of the better sort;" and its chief medical interest lies in the reasons with which he confutes that deadly heresy:—

"Do not the botches, blains and spots (called God's tokens) accompanied with raving and death, argue a stranger [*sic*] infection than that of the leprosy, to be judged by botches and spots? [the infectiousness of leprosy being proved by revelation, Lev. xiii.]. Doth not the ordinary experience of laying live pigeons to plague-sores and taking them presently dead away, and that one after another, demonstrate mortal infection? In that the plague rageth and reigneth especially amongst the younger sort, and such as do not greatly regard clean and sweet keeping, and where many are

[1] *An Epistle discoursing upon the present Pestilence, teaching what it is and how the people of God should carrie themselves towards God and their neighbours therein.* Reprinted, with some Additions, by Henoch Clapham. London, 1603.

[2] *A Short Dialogue, etc., ut supra.*

pestered together in alleys and houses—is not this an argument of infection? Thousands can directly tell where, when, and of whom they took the infection....Persons of a tender constitution or corrupt humours sooner take the plague than those of a strong constitution and sound bodies. The infirmities of many women in travail, and other diseases, turn into the plague. We see few auncient people die in comparison of children and the younger sort.

"Lastly, of those that keep a good diet, have clean and sweet keeping, live in a good air, use reasonable and seasonable preservatives, and be not pestered many in one house, or have convenient house-room for their household—we see few infected in comparison of those that fail in all these means of preservation and yet will thrust themselves into danger."

The plague of London in 1603 called forth also a poem by John Davies, a schoolmaster of Hereford. It is called "The Triumph of Death; or the Picture of the Plague, according to the Life, as it was in A.D. 1603[1]." The description is by no means so concrete as the title would have us believe, and might, indeed, have been taken, most of it, at second-hand from Dekker:—

"Cast out your dead, the carcass-carrier cries,
Which he by heaps in groundless graves inters....
The London lanes, themselves thereby to save,
Did vomit out their undigested dead,
Who by cart-loads are carried to the grave,
For all those lanes with folk were overfed."

He mentions that the prisoners in the gaols were comparatively exempt from plague[2]. One line suggests the great size that the plague-buboes sometimes reached:

"Here swells a botch as high as hide can hold."

Perhaps his particulars of the plague in the provinces, in 1603 and following years, are from his own knowledge. Both the Universities, he says, were forsaken.

"Each village free now stands upon her guard....
The haycocks in the meads were oft opprest
With plaguy bodies, both alive and dead,
Which being used confounded man and beast."

One incident he vouches for (in a marginal note) as having

[1] In a volume with other pieces. London, 1605.

[2] But several warders in the Tower died of it. (*Cal. State Papers*, Sept. 16, 1603.)

occurred at Leominster: A person with the plague was drowned to prevent infection, by the order of Sir Herbert Croft, one of the Council of the Marches of Wales.

The Plague of 1603 in the country near London.

Most of the country parishes nearest to London had plague-burials in 1603, doubtless from the escape of infected Londoners to them and from the spreading of the infection. In several of these parish registers[1] the plague-deaths in 1603 are more than in the time of the Great Plague of 1665: there is a note in the Croydon register that "many died in the highways near the city." The following table shows the mortalities, great and small.

	Burials from all causes.	Burials from plague.		Burials from all causes.	Burials from plague.
Barking	381	—	Hackney	321	269
Battersea	23	—	Hampstead	7	—
Beckenham	24	—	Isleworth	75	—
Bromley	26	—	Islington	322	—
Cheam	13	9	Kensington	32	—
Chigwell	28	—	Lambeth	566	—
Chiselhurst	62	—	Lewisham	117	—
Clapham	20	mostly plague	Romford	122	—
Croydon	—	158	Stratford	130	89
Deptford	235	—	Streatham	36	—
Ealing	136	—	Tottenham	79	44
Edmonton	145	85	Twickenham	—	67
Eltham	52	17	Wandsworth	—	100
Enfield	253	129	Wimbledon	21	—
Finchley	51	38			

A comparison of these figures with those of 1665 will show that the northern parishes, Islington and Hackney, as well as parishes farther out in the country, such as Enfield, had more plague-deaths in 1603 than in the time of the Great Plague. Also Barking, Stratford and Romford on the one side, and Lewisham, Eltham and Croydon on the other, had

[1] In Lysons, *Environs of London*.

heavier mortalities in the earlier year. It would appear, indeed, that the infection in the country near London had been attracting notice before the plague in the capital caused any alarm. On April 18, 1603, the lord mayor wrote to the Privy Council concerning the steps that had been taken "to prevent the spread of the plague in the counties of Middlesex and Surrey." On July 20, 1603, the king issued a warrant to the constables and others of the hundred of Twyford in Kent, to levy a special rate on certain parishes to relieve the sufferers by a grievous plague in the villages of West Malling, East Malling, Offham, and seven others[1]. Such rates were usually levied when an epidemic was nearly over; so that the outbreak in Kent must have been at least as early as that in London.

The towns and villages of Hertfordshire, which were favourite resorts of Londoners in plague-time, had their share of the visitation in 1603. At Great Amwell, there were 41 burials in the year, of which 19 were of the plague between August 19 and November 28, 6 of them in one day. Doubtless the registers of other parishes in the home counties would show a similar history if they were searched[2].

Annual Plague in London after 1603.

Before following the plague of 1603 into the provinces, it will be convenient to give the history of the infection in London for the next few years. There was little plague in 1604 and not much in 1605; but in 1606 the infection again became active, and continued at its endemic level for some five or six years. The following table, from the weekly bills of mortality, shows how regularly the infection came to a height in the autumn year after year, as if it had been a product of the soil[3]:

[1] *Hist. MSS. Com.* x. pt. 4, p. 5.

[2] E.g. plague at Datchet (*Notes and Queries*, 3rd ser. VI. 217).

[3] John Bell, *London's Remembrancer*. London, 1665 [1666].

Table, from the Weekly Bills of Mortality (London), showing the increase of Plague in Autumn, for five successive years.

	1606	1607	1608	1609	1610
Total deaths from plague in the year	2124	2352	2262	4240	1803
Weekly deaths in					
July	25	27	16	60	38
	33	33	26	57	45
	50	37	24	58	45
	46	51	50	91	40
	66	43			
August	67	77	45	100	47
	75	69	70	126	50
	85	76	79	101	73
	85	71	73	150	60
				177	99
Sept.	116	105	123	141	96
	105	121	136	158	89
	92	114	107	210	86
	87	177	143	144	72
			147		
Oct.	141	150	103	154	63
	106	113	131	177	79
	117	110	124	131	59
	109	82	102	55	49
	101	68			
Nov.	68	66	109	84	58
	41	55	72	69	40
	78	46	69	67	22
	72	21	70	59	42
				51	39

In Dekker's *Seven Deadly Sins of London*, published in 1606, he returns to the subject of the plague. He says that it still slays hundreds in a week, a statement which will be seen to be an exaggeration by reference to the Table. But, on another point, Dekker would have been correctly informed. The playhouses, he says, stand empty, with the doors locked and the flag taken down. The policy of forbidding plays during plague-time, or when the infection threatened to be active, was advocated by the Puritan clergy as early as 1577, and had been in force in the plague of 1563. "Plaies are banished for a time out of London," says Harrison in 1572, "lest the resort unto them should ingender a plague, or rather disperse it being

already begonne[1]." In a sermon preached at Paul's Cross on Sunday, November 3, 1577, in the time of the plague, by T. W., on the text "Woe to that abominable, filthy and cruel city," the preacher exclaims, "Behold the sumptuous theatre-houses, a continual monument of London's prodigal folly! But I understand they are now forbidden because of the plague[2]." By the year 1581 the lord mayor had become a zealous supporter of the Puritan demands for the stopping of plays in the City and in the Liberties[3]. In July (?), 1603, James I. granted a licence to players for performances in the Curtain and Boar's Head theatres, "as soon as the plague decreases to 30 deaths per week in London[4]." In the beginning of winter, 1607, on the subsidence of plague, the theatres were permitted to be opened, so that the "poor players," might make a living; but as the plague revived in 1608, and became still more serious in 1609, it is tolerably certain that the theatres were shut during the whole summer and autumn of those years.

Those years, from 1606 to 1610, when the actor's and dramatist's profession was seriously hindered by the fear of plague, correspond to a blank period in the personal history of Shakespeare. It has been conjectured that he retired from London for a time, before his final retirement to Stratford-on-Avon. At all events his occupation, if not gone, was greatly interfered with in every one of the years from 1603 to 1610, excepting perhaps the years 1604 and 1605, which would hardly have come within the limit of 30 plague-deaths in a week. In 1604 his name is joined in a patent with that of Laurence Fletcher for the Globe theatre. Plays continued to be acted in the plague-years, before the court or in the houses of the nobility; but the applause of the pit and gallery would have been wanting. *Macbeth*, which is supposed, from its subject, to have been written to celebrate the accession of the king of Scots to the English crown was not put on the stage until 1610 or 1611.

[1] Extracts from *Harrison's MS. Chronologie* by Furnivall in Appendix (p. 268) to *Elizabethan England*. Camelot Series, 1890.

[2] *A Sermon preached at Powles Crosse*, etc. London, 1578.

[3] *Remembrancia* (numerous extracts from the City records, under "Plays").

[4] *Cal. State Papers*, Addenda, James I. p. 534.

King Lear was given before the court at Christmas 1606. One of the quartos of *Troilus and Cressida*, published in 1609, with the author's name, has a note to say that "this new piece had never been staled with the stage, never clapper-clawed by the palms of the vulgar;" but another edition of the same year (1609) omitting the preface, bears on the title that the piece had been played at the Globe theatre by the king's servants, from which it is inferred that it had been acted in the interval between the two editions of 1609. After 1610, and continuously so until 1625, there was no plague in London to interfere with the business of actors and play-writers, just as the period from 1594 to 1603 was a clear interval. The earlier time of freedom was the great period of the drama in London. The disastrous plague of 1603 and the successive unhealthy summers and autumns until 1610 seriously interfered with it, and seriously interfered, also, with Shakespeare's active share in the production of plays on the stage. Whatever writing he did after that would have been with a less certain prospect of representation, or, one may say, was not done under the same direct influence of playhouse atmosphere which inspired his earlier comedies and historical plays.

Plague in the Provinces in 1603 and following years.

Returning now to 1603, to follow the infection into towns and villages in the provinces, we find first that the plague had been active in some provincial parts of England for several months before it broke out severely in London in 1603. At Chester the great epidemic, referred to in the sequel, began in September, 1602. At Stamford, an epidemic which eventually carried off nearly 600 is heard of first on December 2, 1602, when the corporation resolved to build a "cabbin" for the plague-stricken, and again in January, 1603, when a fourth part of a fifteenth was levied for their relief and maintenance[1].

At Oxford, which was one of the towns earliest and most

[1] *Notes and Queries*, 6th series, II. 524. The mortality is stated on the authority of the parish registers of St George's and St Michael's, the dead having been "buried at the cabbin of Whitefryers."

severely smitten, after London, the disease was first seen in July, 1603, and was supposed to have been spread abroad by the "lewd and dissolute behaviour of some base and unruly inhabitants." In September the colleges broke up, having made a collection for the relief of the plague-stricken town's people before leaving. The Michaelmas term was prorogued until December 5, but very few came to the congregation, the plague not ceasing until February. Anthony Wood says:

"The truth is, the times were very sad, and nothing but lamentation and bemoanings heard in the streets. Those that had wealth retired into the country, but those that were needy were, if not taken away by death, almost starved, and so consequently ready to mutiny against their superiors for relief." All the gates of colleges and halls were constantly kept shut day and night, a few persons being left in them to keep possession. The shops of the town were closed, none but the attendants on the sick or the collectors for them were to be seen stirring abroad, the churches were seldom or never open for divine service.

The plague having ceased in February most of the scholars came back, and in April the infection broke out again, but was prevented from spreading. The court was at Oxford in 1604, and plague broke out after it left, the infected being sent, as before, to the house in Portmead and to the cabins. Among the deaths was that of the Principal of Hart Hall, apparently in August. It broke out once more in March, 1605, but did not spread, whether owing to the measures that were taken or to natural causes may remain doubtful[1]. From that date Oxford had a twenty years' immunity, until 1625. The Cambridge annals are less full, partly, perhaps, because none of the colleges kept a register on the plan of that of Merton College; but it appears from a letter assigned to 1608 that the Visitor of King's College had been unable to come to the college to exercise his much-needed authority, "in regard of the infection[2]."

The severity of plague in 1603 among the provincial towns and country parishes is known accurately for only a few of them. From a considerable number more there is evidence of

[1] There is *An Account of the Plague at Oxford*, 1603, in the Sloane MS. No. 4376 (14), extracted from the register of Merton College, which had also been the source of Anthony Wood's account, as summarised in the text.

[2] *Cal. State Papers.* Addenda, 1580–1625.

outbreaks of one degree or another. Thus at Canterbury, the accounts of the corporation contain entries of sums paid for watching shut-up houses, for carrying out the dead, and the like, during twenty-four weeks in 1603–4[1]. At Exeter, a pest-house had to be provided, and the fairs were not kept[2]. Similar indications of plague come from Winchester[3], Colchester[4], Ipswich[5], Norwich[6], Boston[7], and Newcastle[8]. The register of a parish in Derbyshire (Brimington) contains plague-deaths in the end of 1602[9].

For Chester there are full particulars of a great plague. It began in September, 1602, in a glover's house in St John's Lane, where 7 died, and kept increasing until the weekly deaths reached 60. In 1603 there died of the plague 650, and of other diseases 61. In 1604 the plague-deaths were 986, of which 55 were in one week. From October 14, 1604, to March 20, 1605, 812 died, and about 100 more until the 9th January, 1606, when the infection ceased for a time. Cabins outside the city were erected for the plague-stricken. In some houses, especially of sailors, five or six of the same family died in the course of two or three weeks[10].

It appears to have been in Nantwich and Northwych in one or more of the years 1603–1605, a rate for relief of the poor in them having been ordered on June 22, 1605. Plague-deaths occur in the registers of Macclesfield and Congleton in 1603. At Stockport 51 were buried of plague from October 9, 1605, to August 14, 1606, most of them in the latter year[11]. Straggling epidemics are also reported from Northamptonshire—31 burials from plague at Merston Trussell in 1604, and 16 at Eydon in 1605[12].

One of the severest epidemics of the period occurred at York in 1604. The markets were closed, the courts adjourned

[1] *Hist. MSS. Commis.* IX. 160.
[2] Izacke's 'Memorials of Exeter' (in *N. and Q.*, 3rd ser. VI. 217).
[3] Bailey, *Transcripts from the MS. Archives of Winchester*, 1856, p. 109.
[4] Cromwell. [5] *Hist. MSS. Commis.* IX. [6] *Ibid.* X. pt. I, p. 89.
[7] Thompson's *Boston*. [8] *Hist. MSS. Com.* IX. [9] *Archæologia*, VI. 80.
[10] Rogers' MS. in Hemingway's *Hist. of Chester*. Harl. MS. 2177.
[11] Earwaker, *East Cheshire*, II. 471; I. 406.
[12] Bridges and Whalley, II. 53; I. 124.

to Ripon and Durham, and the Minster and Minster-yard closely shut up. The infected were housed in booths on Hob-moor and Horsefair. The number of those who died is put down at 3512[1]. Durham also had a visitation in St Giles's parish, but a minor one[2].

At Shrewsbury, however, the plague of 1604 was on the same disastrous scale as at Chester and York, the deaths in the five parishes from June 2, 1604, to April 6, 1605, having been 667. On October 11, 1604, a proclamation was issued against buying or receiving apparel, bedding, etc., as it was suspected that plague spread greatly in the town by such means[3]. A weekly tax was levied upon the inhabitants of Manchester, sometime previous to 1606, for the relief of the poor infected, or suspected of being infected, with the plague[4]. It was in Nottingham in 1604, and in at least one of the parishes in the county (Holme Pierrepont)[5].

There are few parts of England from which evidence of plague does not come in the years immediately following the great plague in London in 1603. To those already mentioned we have to add Cranborne, in Dorset, where 71 died of plague (in a total of 91) from June to December, 1604, six deaths having occurred in the family first infected and eight in another[6]. The parish register of Monkleigh in North Devon has the words "cessat pestis" opposite the entry of a burial on March 30, 1605[7]. In 1606 Peterborough was visited, the infection lasting "until the September following[8]." In 1606 Eton also was "visited," as appears from payments made[9].

In the years 1606–1610, as we have seen, the plague in London occurred as a regular product of the summer and autumn seasons. The outbreak in 1608 has left several traces in the state letters[10]. On September 12, Lord Chancellor Ellesmere writes from Ashridge (Berkhamstead) to the Secretary

[1] Drake's *Eboracum*. Lond. 1736, p. 121.
[2] Sykes, *Local Records of Northumberland and Durham*.
[3] Phillips, Owen and Blakeway.
[4] *Cal. State Papers*. Addenda, 1580–1625.
[5] Parish Register (in a local history). [6] *Notes and Queries*, 6th ser. II. 390.
[7] *Ib.* [8] *Ib.* [9] *Ib.* [10] *Cal. State Papers*, 1608–9.

of State that he will remain away until he is fully sure of his London house being clear of the infection. On September 20 the City ditch was being cleaned out, and Parliament was put off until February. On November 26 a letter from the court at Newmarket states that the king is angry that my Lord Chamberlain has not sent him the bill of sickness. In 1609 there were 13 plague-deaths in Enfield parish, and in 1610 some suspicious cases near Theobalds.

In the provinces there is no record of plague again until 1608: at Chester, in that year, 14 died of it "at the Talbot[1]." In 1609 the infection was at work in a number of provincial centres. On June 1 a letter from Rochester reports it prevalent in Kent, impeding the work of the Commissioners for the Aid. On June 15 the Commissioners at Hereford request farther time on account of the plague. On August 22 the king's tenants of Long Bennington, near Grantham, are brought to great poverty by the plague[2]. These accounts relate to the counties of Hereford, Lincoln and Kent, and with the last may be taken the brief reference to plague at Sandwich[3]. Other counties affected in 1609, perhaps only at a few spots, are Derbyshire, Norfolk, Northumberland, and Leicestershire. In the first, there died at Chesterfield a few persons of the plague from March 18 until May; at Belper, 51 between May 1 and September 30; and at Holmesfield, the curate on March 12[4]. At Norwich the outbreak of 1609 was slight compared with other experiences of that city[5]. Its existence at Newcastle the same year is known only from the register of St Nicholas parish[6].

The plague in Loughborough was one of the severer kind. The first case of it appears to have been on the 24th August, 1609, in a woman who had given birth to a child on the 19th. The last plague entry in the parish register is on February 19, 1611; so that the epidemic went on for about eighteen months. During that time the whole mortality was 452, of which by far the most were plague-burials. Within a mile of Loughborough is a spot of ground, long after known as the Cabbin Lees,

[1] Hemingway. [2] *Cal. S. P.* [3] *Hist. MSS. Com.* v. 570.
[4] *Archæologia*, VI. 80. [5] Blomefield. [6] Sykes.

whereon many of the inhabitants "prudently built themselves huts and encamped to avoid the infection[1]."

In Leicester there was a slight amount of plague in 1607, and it reappeared in 1608 (payments on account of it in the former year, and an item of "30 hurdells used at the visited houses" in the accounts of 1608). A more severe outbreak occurred in 1610 and 1611, during and after the great plague at Loughborough. The streets lying towards the Castle were exempt; a pest-house was built in Belgrave Gate; the burials for 1610 were 82 in St Martin's parish alone (more than half being from plague), and in 1611 the same parish had 128 burials[2].

In 1610 the infection was at work in one or more villages of the county of Durham; 78 deaths "of the pestilence" occur in the register of Lamesley parish, and the same year was probably one of the numerous plague seasons down to 1647 in Whickham parish, where it is said that the people, perhaps the plague-stricken, lived in huts upon Whickham Fell[3]. At Chester in 1610 "many died of the plague[4]"; and at Evesham there was a visitation which caused the wealthier inhabitants to leave the town and the authorities to effect a much-needed improvement in the cleanliness of the streets (swine found at large to be impounded, stones, timber, dunghills and carrion to be removed from the streets, and the paving in front of each house to be repaired and cleansed once a week)[5].

Between 1610 and 1625, which was an almost absolutely clear interval for London, there are few accounts of plague from the provinces. In 1611, moneys were levied for "the visited" at Sherborne[6], and there was a local rate for the same class at Canterbury in 1614–15[7]. Accounts of the same kind for Coventry probably belong to the year 1613[8]. Then, as we come near the next great plague-period, which began with the new reign in 1625, we find an entry of 26 plague-deaths at Banbury in 1623, "recorded in a part of the original register

[1] Nichols, III. 892–3.
[2] Nichols (parish registers); Kelly, *Trans. Roy. Hist. Soc.*, 1877, VI. 395.
[3] Sykes. [4] Hemingway. [5] May, *Hist. of Evesham*, 1845, p. 371.
[6] Add. MS. 29,975, f. 25. [7] *Hist. MSS. Com.* IX. 162. [8] *Ib.* I. 101.

which has not been transcribed into the parchment copy[1]:" if the date be correct, Banbury was the first town to break the somewhat prolonged truce with the plague, which became broken all over the country in 1625. There appears also to have been distress in Grantham from sickness of some kind in 1623; in September of that year the corporation of Stamford made a collection "in this dangerous time of visitation," and sent £10 of it to Grantham, the rest to go "to London or some other town as occasion offered." But the years 1623 and 1624 were so much afflicted with fevers that the "dangerous time of visitation" may not have meant plague.

Ireland.

The accounts for Ireland are so casual that one suspects there may have been more plague in that country than the records show. Thus, on January 25, 1604, there is a municipal order at Kilkenny, for men to stand at every gate to keep out all strangers or suspected persons that might come from any infected place within the kingdom; and on October 24 there is another order, from which it appears that the plague was then in the town, that it was needful to have the sick persons removed to remote places, that no dung should be in the open streets before the doors, and that no hogs should go or lie in the streets[2]. Towards the end of 1607 and beginning of 1608 there was a "most dreadful pestilence" in the city of Cork, which "by degrees ceased of itself[3]."

Plague in Scotland, 1603-24.

The history of the plague in Scotland, which we left in a former chapter at the year 1603, begins again in that year and goes on at one place or another continuously until 1609. From June, 1603, until February, 1604, it continued in the south of Scotland. At Edinburgh, in April, 1604, the house of Mr

[1] Beesley, *Hist. of Banbury*.
[2] Dean Butler's notes to Clyn's and Dowling's *Annals*.
[3] Smith's *Cork*, from MS. Annals.

John Hall was "clengit," because a servant woman's death was suspected of the plague: which infection certainly spread in May and became so severe in July that people fled the city[1]. A letter of July 18 from Codrus Cottage, relating to gold-mining, and making mention of Closeburn, says that the plague is amongst the men[2].

In 1605, towards the end of July, the infection reappeared at Edinburgh, Leith, and St Andrews[3]. On October 7, the chancellor of Scotland, Lord Dunfermline, wrote to the earl of Salisbury that the plague was rife in the small towns about Edinburgh, probably its old favourite seats along the Firth and on the Fife coast[4]. The chancellor himself, as we know from another source, had had a sad experience of it in his own house; his son and niece had died of the plague, and his daughter "had the boils" but recovered[5]. The next year, 1606, was the worst of this plague-period in Scotland: "It raged so extremely in all the corners of the kingdoms that neither burgh nor land in any part was free. The burghs of Ayr and Stirling were almost desolate, and all the judicatures of the land were deserted[6]." It is to this epidemic that a curious transaction, discovered by Chambers, seems to belong. Two houses, on the line of the great road from the south towards Aberdeen, situated on opposite sides of the Dee, the one being the house of a proprietor and the other of a minister, were suspected of having received the infection. The gentlemen of the county met and resolved to send to Dundee for two professional "clengers" or disinfectors, giving a bond to the borough of Dundee for 500 merks for the services of its "clengers[7]."

In April of the year following, 1607, we hear of the plague in Dundee itself, despite the experts, as well as in Perth and other places[8]. In July, 1608, many houses in Dundee were infected, and so many magistrates dead that new appointments were made by the Privy Council[9]. It broke out again at Perth

[1] Chambers, *Domestic Annals*. [2] *Cal. State Papers*.
[3] Chambers. [4] *Cal. State Papers*.
[5] Balfour's *Annals of Scotland* (in Chambers, I. 399).
[6] *Ibid.* [7] Chambers.
[8] *Aberdeen Burgh Records*. [9] Chambers.

on August 29, and continued till May, 1609, "wherein deit young and auld 500 persons[1]."

Until 1624 there is no other Scottish reference to plague except an entry, November 7, 1609, touching the arrival at Leith of a vessel from the Thames, with some of her crew dead of the plague, and the quarantining of her at Inchkeith[2]. Edinburgh had a small outbreak the year before the next great English plague that we come to. On November 23, 1624, the infection was discovered to be in several houses, and the session of the law courts was adjourned to January 8[3]; but Scotland appears to have had no part in the great infection of English soil which immediately followed.

Malignant Fever preceding the Plague of 1625.

The period of immunity from plague both in London and in the provinces, which began about 1611, was at length broken in 1625. The health of London, and of country districts as well, had not been good for two years before, but plague was not the reigning type of disease. Thus, in London, the burials rose from 8959 in 1622, to 11,102 in 1623 and to 12,210 in 1624. The letters of the time enable us to see what it was that disturbed the public health. On August 21, 1624, Chamberlain writes from London to Dudley Carleton[4]:

"We had 328 died this week, a greater number than hath been these fifteen or sixteen years, and yet no mention of plague. God keep it from among us, for we are in danger. But this spotted fever is cousin-german to it at least, and makes as quick riddance almost. The Lady Hatton hath two or three of her children sick of it at her brother Fanshaw's, in Essex, and hath lost her younger daughter, that was buried at Westminster on Wednesday night by her father; a pretty gentlewoman, much lamented." Again, on September 4: "We have here but a sickly season, which is easily seen by the weekly mounting of our bill, which is come this last week to 407, and yet we will acknowledge no infection [i.e., of plague]. Indeed, by

[1] *Chron. of Perth.* [2] Chambers. [3] *Ibid.*

[4] The invaluable letters of Chamberlain, as well as those of Mead (of Cambridge) and others, were collected by Dr Thomas Birch in the last century, and printed in 1848 under the titles *The Court and Times of James I.*, and *C. and T. Charles I.*, without an index but with some useful notes.

the particulars we find about 250 of them to be children, most of the rest carried away by this spotted fever, which reigns almost everywhere, in the country as ill as here...The mortality is spread far and near, and takes hold of whole households in many places." On October 9: "The town continues sickly still, for this week there died 347." On October 23 we hear of the Lord Keeper being "troubled with the fluent disease of the time"—the flux, or flix. On December 18 (as well as previously on August 21) a cure of smallpox is mentioned in a person of quality.

These, then, were the prevalent types of epidemic sickness, in the houses of the great as well as among the poor—spotted fever or typhus, dysentery or flux, and smallpox. Two of these continued into the plague-year, 1625, as Taylor, the Water-poet, says of that occasion:

> "Thou see'st the fearful plague, the flix and fever,
> Which many a soul doth from the body sever."

An eminent victim of the "pestilent fever" was the marquis of Hamilton, who died of it while at Moor Park, Rickmansworth, on Ash-Wednesday, 1625[1]. His residence in London was the house called Fisher's Folly (mentioned by Stow) outside Bishopsgate in a parish which was now "pestered" with tenements of the poor.

The fever was not always called the spotted fever. It may have been the same disease that is often spoken of under the name of ague—"the ague with a hundred names," as Abraham Holland says (1625). Thus, Mead, of Christ's College, Cambridge, writes on September 4, 1625: "Agues grow wonderfully rife both here and everywhere; so that one told me yesterday that about Royston and Barkway they wanted help to gather their harvest out of the fields"—perhaps the same sort of "burning fever" which we shall have to trace a few pages later, both in town and country, in time of peace as well as in the Civil Wars, the type of sickness which became the common one in England when the plague had ceased, reaching its highest point in the 18th century. But here again we meet the old difficulty of "influenza."

These historical glimpses of spotted fevers, or pestilent fevers, in the houses of the great, as well as among the common

[1] Chamberlain to Carleton, *C. and T. James I.*, II. 504.

people, are in accordance not only with the London bills of mortality for the respective years, but also with the registers of country parishes and market towns as abstracted by the laborious Dr Short. Repeating the form of table used in a former chapter, which dealt with the epidemic years 1557–8 and 1580–82, we find the years 1623–25 distinguished as follows:

Country Parishes.

Year.	No. of registers examined	No. of unhealthy parishes	Baptised in same	Buried in same
1622	85	11	177	223
1623	84	30	601	836
1624	87	19	362	511
1625	88	13	246	327

Market Towns.

Year	No. of registers examined	No. of unhealthy towns	Baptised in same	Buried in same
1622	25	4	345	442
1623	25	16	439	2254
1624	25	9	714	978
1625	25	9	563	666

The incidence upon the year 1623 is the more noteworthy as there appears to be no record of plague in England that year in its more usual seats, except an entry in a parish register at Banbury. Fever, we may take it, was the prevalent epidemic types both in London and provincial places, urban and rural. In his other treatise Short calls it "malignant spotted fever," and refers specially to the parish registers of Keswick, Penrith, and Wigton for its prevalence in 1623[1].

Chamberlain, in the letter of August 21, 1624, says the spotted fever was cousin-german at least to the plague; and therein he expressed as a layman an opinion which was afterwards formally expounded by Willis Sydenham and Morton. Along with the flux and the smallpox it stood for the unhealthiness of London in 1623 and 1624 and the first months of

[1] *Chronological History of the Air, Weather, Seasons, Meteors, etc.* 2 vols. Lond. 1749, I. 306:—"This fever began, and raged terribly in England in 1623; was little, if at all, short of the plague."

1625, just as the trio were the chief causes of epidemic mortality in the capital in the latter part of the seventeenth century and throughout the whole of the eighteenth. But in 1625 London was not yet done with plague. As the year passed from spring into summer, the spotted fever did not, indeed, cease (as we may infer from casual references and from the known facts of the analogous plague-years, 1636 and 1665); but it was soon overtaken, surpassed, and eclipsed by the greater infection, the old "common infection" of the sixteenth century, the bubo-plague itself. To explain the existence of typhus in the Liberties and out-parishes of London in 1623 and 1624, we find ready to hand the evidence of overcrowding while the plague was quiet from 1611; the births in 1624 were about half as many again as immediately before the last great plague of 1603, and the deaths were twice as many. The fringe of poverty had grown once more, despite the epidemic checks of flux, fever and smallpox: the harvest was ready for the sickle, and the reaping took place in the summer and autumn of 1625. The infection of plague was lurking in London, as it had been for nearly three centuries; but it depended for its activity upon the times and seasons, and the season of 1625 was a favourable one.

The London Plague of 1625.

The previous summer of 1624 had been unusually hot and dry. The weather in October was exceptionally fine, and the fruit crop was abundant. In January the weather was warm and mild. On February 25 there occurred one of those very high tides that come perhaps once in a generation. Thames Street was wrecked, Westminster Hall was "full three feet in water all over. But the greater loss we hear of in the drowning of marshes, and overthrowing the walls in Kent, Essex, Lincolnshire, Yorkshire, and other places near the sea[1]." For the first three months of 1625 the deaths from plague were two or three in a week, some weeks being clear. In the last week of March they were 11, and in the week after, 10. In the last week of

[1] Chamberlain to Carleton, in *Court and Times of Charles I.*, i. 28.

May they were 69, reported from twenty parishes. The spring is described by the Water-poet as "wholesome;" but the early summer was unusually cold. On June 12 Chamberlain writes: "We have had for a month together the extremest cold weather ever I knew in this season." The whole month of June was a time of "ceaseless rain in London[1]." In the country, the hay-harvest was spoilt, and the corn-harvest was only a half crop[2]. Another says (in verse), that the summer sun wore sallow hair and a languishing complexion; the air was full of black mists and damp, with no dewdrops at night, but a vaporous smoke[3]. The following table of the weekly burials (with christenings) in London will show how the plague increased after the rains of June. The mortality of May and June had been a good deal higher for the season than in the moderate endemic years of plague, such as the last series from 1606 to 1611; but it was not until July that a plague of the first degree declared itself.

A Table of the Christenings and Mortality in London for the year 1625[4].

Week ending	Christened	Buried	Of Plague	Parishes Infected
Dec. 23	165	183	0	0
30	176	211	0	0
Jan. 6	199	220	1	1
13	194	196	1	1
20	160	240	0	0
27	178	226	0	0
Feb. 3	178	174	3	1
10	161	204	5	2
17	181	211	3	1
24	190	252	1	1
Mar. 3	185	207	0	0
10	196	210	0	0
17	175	262	4	3
24	187	226	8	2
31	133	243	11	4
Apr. 7	184	239	10	4
14	154	256	24	10
21	160	230	25	11
28	134	305	26	9

[1] Salvetti's Diary, in *Hist. MSS. Com.* XI. pt. 1, p. 26.
[2] *Cal. S. P.* 15 Sept. [3] Holland.
[4] Bell, *London's Remembrancer.*

Week ending	Christened	Buried	Of Plague	Parishes Infected
May 5	158	292	30	10
12	140	332	45	13
19	182	379	71	17
26	145	401	78	16
June 2	123	395	69	20
9	125	434	91	25
16	110	510	165	31
23	110	640	239	32
30	125	942	390	50
July 7	114	1222	593	57
14	115	1741	1004	82
21	137	2850	1819	96
28	155	3583	2471	103
Aug. 4	128	4517	3659	114
11	125	4855	4115	112
18	134	5205	4463	114
25	135	4841	4218	114
Sept. 1	117	3897	3344	117
8	112	3157	2550	116
15	100	2148	1674	107
22	75	1994	1551	111
29	78	1236	852	103
Oct. 6	77	838	538	99
13	85	815	511	91
20	91	651	331	76
27	77	375	134	47
Nov. 3	82	357	89	41
10	85	319	92	35
17	88	274	48	22
24	88	231	27	16
Dec. 1	93	190	15	12
8	90	181	15	7
15	94	168	6	5
	6983	54265	35417	

The deaths from all causes in May and June were so many more than the reported plague-deaths could account for that those who watched the bills of mortality (Mead at Cambridge, Salvetti in London) suspected that plague was being concealed. "It is a strange reckoning," says Mead of the bill for the week ending June 30: "Are there some other diseases as bad and spreading as the plague, or is there untrue dealing in the account[1]?" Probably there were both; at the end of the year the deaths from all causes were some 20,000 more than the plague accounted for; and at least half of that excess was extra to the ordinary mortality. The spotted fever and the flux

[1] *C. and T. Charles I.*, letter of 2 July, 1625.

doubtless continued side by side with the plague, having been its forerunners. The parishes most affected were, as in 1603, St Giles's, Cripplegate, St Olave's, Southwark, St Sepulchre's, without Newgate, and St Mary's, Whitechapel, corresponding to the mazes of lanes and twisting passages, "pestered" with the tenements of the poorer class, of which only a few examples now remain from 18th century London. The following are the parishes with greatest mortality, in their order (Bell):

	Total deaths	Plague deaths
St Giles's, Cripplegate	3988	2338
St Olave's, Southwark	3689	2609
St Sepulchre's, Newgate	3425	2420
St Mary's, Whitechapel	3305	2272
St Saviour's, Southwark	2746	1671
St Botolph's, Aldgate	2573	1653
St Botolph's, Bishopsgate	2334	714
St Andrew's, Holborn	2190	1636
St Leonard's, Shoreditch	1995	1407
St George's, Southwark	1608	912
St Bride's, Fleet St.	1481	1031
St Martin's in the Fields	1470	973
St Giles's in the Fields	1333	947
St Clement's Danes	1284	755
St James's, Clerkenwell	1191	903
St Magdalen's, Bermondsey	1127	889
St Katharine's, Tower	998	744
St Dunstan's in the West	860	642
97 parishes within the walls	14342	9197

The original printed bill of the Parish Clerks is extant for the worst week but one, August 4th to 11th[1]. Its mortalities for the week in each of the 122 parishes are almost exactly in the order of the final summation for the year, so that the details throw no light upon the question, in what direction the infection spread, or what parishes felt its incidence most as the season advanced. The total mortalities for the week within the walls, in the Liberties, and in the nine out-parishes (within the Bills) are respectively 1144, 2717 and 994. The infection is said[2] to have begun in Whitechapel, as we conclude that it did also in 1603; but the City had its due share at length, the parishes of St Stephen, Coleman Street (full of tortuous passages), of

[1] In a volume of Topographical Papers in the British Museum, 1298, m (18).

[2] W. Heberden, Junr., *Increase and Decrease of Diseases*. Lond. 1801, p. 66. He gives no authority; "1626" is clearly a misprint.

Allhallows the Great, and of Christ Church having the largest mortalities.

In the 97 parishes of the City, the 16 parishes of the Liberties, and 9 out-parishes, the deaths at the end of the year were 54,265 from all causes, whereof of the plague 35,417. But that was by no means the whole mortality. A separate account was kept for the parishes of Stepney, Newington, Lambeth, Islington, and Hackney, and for the Westminster parishes, in all of which the deaths from December 30, 1624, to December 22, 1625, were from all causes 8,736, whereof of the plague 5,896[1]. The grand total of deaths in 1625 was, accordingly, 63,001, whereof of the plague 41,313.

The large parish of Stepney, extending from Shoreditch to Blackwall, was one of the worst plague-districts in London. It is mentioned as such by Dekker in 1603; and in the plague of 1665 it headed the list, with 8,598 deaths, whereof of the plague 6,583. We have some particulars of it for 1625: in the week July 18 to 24, there died in it 184, whereof of the plague, 144; and from July 25 to 31, 259, of which 241 were plague-deaths[2]; and those figures would have been nearly doubled in the weeks of August. Stepney alone would have had about half the deaths in the additional bill for the year; the parish register of Lambeth gives 623 burials, of Islington 213, and of Hackney 170[3], while Westminster with St Mary Newington (or Newington Butts, between Lambeth and Southwark) and Rotherhithe would account for most of the remainder. The parishes farthest out, and on higher ground, such as Hackney, Islington and Stoke Newington had fewer burials than in 1603.

The plague of 1625 was a great national event, although historians, as usual, do no more than mention it. Coinciding exactly with the accession of Charles I., it stopped all trade in the City for a season and left great confusion and impoverishment behind it; in many provincial towns and in whole counties the plague of that or the following years made the people unable, supposing that they had been willing, to take up the

[1] *Calendar of State Papers*, 1625—26, p. 184.

[2] *The Red Crosse* (broadside). London, 1625.

[3] Parish Histories, and in Lysons' *Environs of London*.

forced loan, and to furnish ships or the money for them. The history might have proceeded just the same without the plague; but historians would doubtless admit that all causes, moral and physical, should be taken into the account; and it will not be thought beyond the scope of this history to enter as fully as possible into these events of sickness. First as to the sources, other than statistical. Four or more poems were written on the plague of 1625—an interminable one by George Wither (with other topics brought in) in eight cantos and about thirty thousand lines[1], a piece by John Taylor, the water-poet and Queen's bargeman, not wanting in graphic touches[2], a short piece by Abraham Holland[3], the son of Philemon Holland, doctor of physic, and another short poem by one Brewer[4]. Besides the poems, there were sermons, mostly when the epidemic was over, and various other moral pieces to improve the occasion. A broadside called *The Red Crosse* gives a few details of former plagues. The letters of Chamberlain to Carleton, those of Mead, at Christ's College, Cambridge (whose relation Dr Meddus, rector of St Gabriel's, Fenchurch Street, was in the City during the epidemic), and the diary of Salvetti, the envoy of the Grand Duke of Tuscany[5], supply many particulars; while the *Calendar of State Papers* brings together other information both for London and the provinces. I know of no account of the plague of 1625 from the medical side[6].

James I., prematurely worn out at fifty-seven, died at

[1] *Britain's Remembrancer, containing a Narrative of the Plague lately past.* London, 1628.

[2] *The Fearfull Summer, or London's Calamitie.* Printed at Oxford, 1625 (reprinted with additions, Lond. 1636).

[3] Holland's *Posthuma.* Cantab. 1626.

[4] *The Weeping Lady, or London like Ninivie in Sackcloth.* By T. B. London, 1625.

[5] *Hist. MSS. Commission*, XI. pt. 1, p. 6.

[6] Bradwell's book, to be mentioned in the sequel, was written for practice during the plague. There is a reference to something of Sir Theodore Mayerne's on the plague of 1625, which I have not succeeded in finding. His *Opera Medica* contain ordinary cases treated by him in London in December, 1625, but there is no mention of plague-cases. Woodall's essay on plague, published in 1639, thus refers to his experience in the epidemic of 1625: "In anno 1625 we had many signes contrarie to the plagues in other times; yea, and many did dye dayly without any signes or markes on their bodies at all."

Theobalds on March 27, from the effects of a tertian ague, for which he preferred to be treated by the plasters and possets of an obscure ague-curer from Dunmow, setting aside his physicians, who would have succeeded no better. A great funeral, for which 14,000 "blacks" were given out, followed on May 7. Meanwhile the marriage of Charles I. to the princess Henrietta of France was being arranged. The king met his bride at Dover on June 13, and entered London with her on the 18th, passing up the river in a state barge to Denmark House, amidst an immense concourse of people on the houses and shipping, and in wherries on the water, with salvoes of artillery and demonstrations of welcome to the Catholic princess. On the 13th the Lord Keeper had written to Conway, Secretary of State, that cases of plague had occurred in Westminster, and that he could have wished that his majesty had determined to come no nearer than Greenwich. The nobility were kept in town to await the coming of the new queen, and some of them by the summons to Parliament. The Houses met on June 18, and were advised in the king's speech to expedite their business on account of the plague. However, those who were disposed to refuse supplies until grievances were redressed could make use of the plague as well as the king, and it was proposed by Mallory and Wentworth to adjourn on that plea until Michaelmas. The Houses sat for three weeks, until July 11, when they were adjourned to meet at Oxford on August 1. On a day in June Francis, Lord Russell (afterwards earl of Bedford), "being to go to Parliament, had his shoemaker to pull on his boots, who fell down dead of the plague in his presence," so that his lordship avoided the House. In the first week of July, the court removed to Hampton Court, and thence to Woodstock and to Beaulieu in the New Forest. The Coronation was put off until October, for reasons connected with the queen's religion as well as for the infection, and eventually until February 2, 1626.

Before Parliament rose, it obtained the king's sanction to a solemn fast. "This," says the Tuscan, Salvetti, "is a ceremony which is performed in all the parishes, and consists in staying in church all day singing psalms, hearing sermons, the one shortly

after the other, and making I know not how many prayers, imploring God for stoppage of the plague, and of the ceaseless rain which for a month past has fallen to the detriment of all kinds of crops." At that date, July 1, he says that plague is now spread through all the streets and has reached other parts of the kingdom. A general exodus took place to the country, of all who had the means to remove. As in 1603, the magistrates, the ministers, the doctors, and the rich men seem to have left the city to take care of itself. On August 9, Salvetti, who had himself escaped to Richmond, writes: "The magistrates in desperation have abandoned every care; everyone does what he pleases, and the houses of merchants who have left London are broken into and robbed." On September 1, Dr Meddus, rector of St Gabriel's, Fenchurch Street, wrote: "The want and misery is the greatest here that ever any man living knew; no trading at all; the rich all gone; housekeepers and apprentices of manual trades begging in the streets, and that in such a lamentable manner as will make the strongest heart to yearn." The city an hour after noon was the same as at three in the morning in the month of June, no more people stirring, no more shops open[1]. This is re-echoed in verse by Abraham Holland:

> "A noon in Fleet Street now can hardly show
> That press which midnight could, not long ago.
> Walk through the woeful streets (whoever dare
> Still venture on the sad infected air)
> So many marked houses you shall meet
> As if the city were one Red-Cross Street."

And by the Water-poet:

> "In some whole street, perhaps, a shop or twain
> Stands open for small takings and less gain.
> And every closed window, door and stall
> Makes every day seem a solemn festival.
> All trades are dead, or almost out of breath,
> But such as live by sickness and by death."

The circumstances are so exactly the same as in 1603 that it is needless to repeat much: the sextons, coffin-makers,

[1] *C. and T. Charles I.* 1. 48.

bearers, searchers, apothecaries and quacks are all profitably employed;

> "And last to dog-killers great gain abounds,
> For braining brawling curs and foisting hounds."

The clocks striking the hours are not heard for the constant tolling of bells. "Strange," says Holland,

> "Strange that the hours should fail to tell the day
> When Time to thousands ran so fast away."

Of the sick, Taylor says there were

> "Some franticke raving, some with anguish crying."

—dèlirious ravings and cries of pain (from the buboes) which we know from the accounts for 1665 to have been no rhetorical exaggeration. There were the same crowded common graves as in 1603, probably in the same graveyards:

> "My multitude of graves that gaping wide
> Are hourly fed with carcases of men.
> Those hardly swallowed, they be fed again."

Or as Taylor says,

> "Dead coarses carried and recarried still
> Whilst fifty corpses scarce one grave doth fill."

The treatment seems to have been mostly in the hands of quacks. Taylor says:

> "On many a post I see Quacksalvers' bills
> Like fencers' challenges to show their skill."

The Water-poet, being Queen's bargeman, appears to have had a proper feeling for all constituted authorities. After denouncing the quacks, as men who "pick their living out of others' dying," he proceeds to eulogise the regular practitioners, forgetting to add that they were now conspicuous by their absence:

> "This sharp invective no way seems to touch
> The learned physicians whom I honour much.
> The Paracelsists and the Galenists,
> The philosophical grave Herbalists,—
> These I admire and reverence, for in those
> God doth dame nature's secrets fast inclose,
> Which they distribute as occasions serve."

—the prevalence of plague not being one of the occasions for revealing the secrets entrusted to them.

The medical faculty is hardly at all in evidence the whole time. Thayre's surgical treatise of 1603 was reprinted; while a semi-empiric, one Stephen Bradwell, the grandson of Banister, a well-known Elizabethan practitioner, published a poor essay on plague, patched up from the usual stale sources and plagiarised even from the lay dialogue of the rector of St Olave's in 1603[1]. Bradwell addressed the reader, on July 15 "from my study in Mugwell-street, ready to my power to do thee any pleasure."

"I have two powders. I have also an excellent electuary. I have likewise lozenges, and rich pomanders to smell of. These are all of my grandfather's invention, and have been proved to be admirably effectual both by his and my father's experience. I confess they are costly; but slight means and cheap medicines (however they promise) prove as dear as death. The first powder is 12 pence a dram. The second is 3 pence a grain (the quantity is 10 or 12 grains). The electuary is 2 shillings and 6 pence an ounce, the quantity is one or two drams. There is a fellow in Distaff-lane that disperseth his bills abroad, bragging of a medicine that was my grandfather Bannister's. My grandfather was very scrupulous of giving any special receipts to others. But if any man can say he hath any receipt of his, I am sure, if it were of any value, I have the copy of it. Because many men know that I have a whole volume of excellent receipts left me both by my grandfather and my father, and lest they should conceive me as too strict and covetous in keeping all secret to myself, I have thought fit for the common good to divulge this excellent antidote following:"—the ingredients occupying a whole page.

This enterprising tradesman had been at Oxford, where he failed to take a degree in medicine, but he was a licentiate of the College of Physicians. He is the single literary representative of the faculty, so far as appears, in 1625; and there is nothing in his essay that concerns us, except the following corroboration of a well-known character of the epidemic:

"Poor people, by reason of their great want, living sluttishly, feeding nastily on offals, or the worst and unwholesomest meats, and many times, too, lacking food altogether, have both their bodies much corrupted, and

[1] *A Watchman for the Pest, teaching the true Rules of Preservation from the Pestilent Contagion, at this time fearfully overflowing this famous Cittie of London. Collected out of the best authors, mixed with auncient experience, and moulded into a new and most plaine method.* By Steven Bradwell, of London, Physition. 1625.

their spirits exceedingly weakened ; whereby they become (of all others) most subject to this sickness. And therefore we see the plague sweeps up such people in greatest heaps."

It is impossible to know whether any considerable proportion recovered. It appears that, as in 1603, the buboes and boils might come out in the same person more than once, and that the best chance was from their suppuration:

> "Some with their carbuncles and sores new burst
> Are fed with hope they have escaped the worst."

But the best hope was in flight, as Bradwell was candid enough to say, although he remained behind with his shilling powders and half-crown electuaries. *Cito ede, longé recede, tardé redi*—is the proverbial advice which he quotes.

However, the people in their flight, unless they were nobles or squires with country houses, fared but ill in the provinces. The story of their reception in country towns and villages is so like that of 1603 that one might suppose in this, as in other things, that the writers of 1625 were copying from Dekker. One of the versifiers, Brewer, has a section specially devoted to a "Relation of the many miseries that many of those that fly the City do fall into in the country." They are driven back by men with bills and halberds, passing through village after village in disgrace until they end their journey; they sleep in stables, barns and outhouses, or even by the roadside in ditches and in the open fields. And that was the lot of comparatively wealthy men. Taylor says that when he was with the queen's barge at Hampton Court and up the river almost to Oxford, he had much grief and remorse to see and hear of the miserable and cold entertainment of many Londoners:

> "The name of London now both far and near
> Strikes all the towns and villages with fear.
> And to be thought a Londoner is worse
> Than one that breaks a house, or takes a purse....
> Whilst hay-cock lodging with hard slender fare,
> Welcome, like dogs into a church, they are.
> For why the hob-nailed boors, inhuman blocks,
> Uncharitable hounds, hearts hard as rocks,
> Did suffer people in the field to sink
> Rather than give or sell a draught of drink.

Milkmaids and farmers' wives are grown so nice
They think a Citizen a cockatrice,
And country dames are waxed so coy and brisk
They shun him as they shun a basilisk."

Taylor gives various instances in prose:

"A man sick of an ague lying on the ground at Maidenhead in Berkshire, with his fit violently on him, had stones cast at him by two men of the towne (whom I could name), and when they could not cause him to rise, one of them tooke a hitcher, or long boat-hook, and hitched in the sick man's breeches, drawing him backward with his face grovelling on the ground, drawing him so under the bridge in a dry place, where he lay till his fit was gone, and having lost a new hat, went his way."

One at Richmond was drawn naked in the night by his own wife and boy, and cast into the Thames, where the next day the corpse was found. The village of Hendon distinguished itself by relieving the sick, burying the dead, and collecting eight pounds, at the least (being but a small village) for the poor of St Andrew's, Holborn, besides allowing good weekly wages to two men to attend and bury such as died. The village of Tottenham appears to have been equally hospitable; but as it was on the road to Theobalds, and some of his majesty's servants dwelt there, the Privy Council on July 19, wrote to the justices of Middlesex to order the inhabitants of Tottenham, who had received into their houses "multitudes of inmates," to remove the new-comers and not to receive any in future[1]. Although the king was not at Richmond, yet as there was a royal residence there, the inhabitants sought to drive away citizens on the ground of the warrant forbidding them to approach any of his majesty's houses[2]. At Woodstock, where the Court was in August, no one was allowed to go from thence to London, nor any to come thither, and for contraveners a gibbet was set up at the Court gate[3]. It was hardly possible to get a letter smuggled into London[4]; in the provinces "no one comes into a town without a ticket, yet there are few free places." At Southampton on August 27, a stranger died in the fields: "He came from London. He had good store of money

[1] *Cal. State Papers.* [2] *Ib.*
[3] Th. Locke to Carleton, *Cal. S. P.*, 14 Aug. [4] Salvetti.

about him, which was taken before he was cold[1]." Dr Donne, the dean of St Paul's, confirms these experiences in a letter of November 25, from Chelsea[2]:

> "The citizens fled away as out of a house on fire, and stuffed their pockets with their best ware, and threw themselves into the highways, and were not received so much as into barns, and perished so: some of them with more money about them than would have bought the village where they died. A justice of the peace told me of one that died so with £1400 about him."

Meddus, rector of St Gabriel's, heard of one sad case of a citizen in Leadenhall-street who removed to the country with his seven children, "but having buried all there is come again hither," in July[3]. In October, the people began to come back, although the infection was by no means over; Salvetti, who was himself near Huntingdon, says that many of the returning artisans caught the infection in the city, which is probable enough, as it happened also in 1665. On October 15, a correspondent of Mead's wrote that in his passing through London he found the streets full of people, and the highways full of passengers, horse and foot. On October 24, we hear of great distress among tradesmen, artificers and farmers round London, and of discontent at the forced loan[4]; although the Court itself was in as great extremity during the plague for want of money as any private house could have been. On November 22, the lord mayor and aldermen wrote to the Privy Council that the great mortality, although it had taken many poor people away, yet had made more poverty by decay of tradesmen, the want and misery being still very great[5]. Still, the effect of this great plague on London, cutting off some fifty thousand in a year, or more than a fifth part of the population, must have been, like that of all other great plagues in London, to cut off the fringe of poverty and broken fortunes, and to raise the general average of well-being of those that remained. Trade would come back; but the submerged tenth, or sixth, or fourth, or whatever fraction they made, were drowned for good.

[1] Locke to Carleton, 27 Aug.
[2] *Cal. S. P.*
[3] Mead, letter in *C. and T. Ch. I.* i. 43.
[4] *Cal. S. P.*
[5] *Ibid.*

London soon filled up the gaps made by the plague, doubtless by fresh blood from the country. In 1627, the christenings were again at 8,408, having been at a maximum of 8,299 the year before the plague. In 1629 they actually exceeded the burials by more than a thousand (9,901 to 8,771), and continued to be slightly in excess until the next plague of 1636.

The Plague of 1625 near London.

In the immediate neighbourhood of the capital the parishes on the Kentish chalk below London, such as Deptford, Greenwich, Lewisham, Eltham and Bromley had more plague in 1625 than in 1603. Kensington, for some unknown reason, has 80 deaths from all causes in the register, as against 32 in 1603 and 62 (of plague 25) in 1665. The group of parishes in Middlesex, such as Enfield, Edmonton and Finchley, had each a large number of deaths, but somewhat less than in 1603 and 1665, and the same holds for Hackney and Stoke Newington, Islington and Hampstead. Places up the Thames all the way from Battersea to Windsor were infected, including Wandsworth, Putney, Isleworth, Richmond, Kingston and Hampton Court. Eton was "visited;" even the sequestered village of Stoke Pogis had houses shut up "by reason of the contagion" and a collection made for their impoverished inmates. Among the Hertfordshire towns to which Londoners resorted in plague-times, Watford is known to have had plague-deaths in 1625. In Essex,—Stratford, Tottenham, Romford and Barking had each a large number of plague-deaths, and, in Surrey, Croydon and Streatham. At Carshalton, oddly enough, the heavy mortality was the year after (1626) "not from plague, but from a disease somewhat akin to it[1]."

Plague in the Provinces in 1625 and following years.

It is stated by Salvetti and other gossips of the time that the infection of plague in 1625 was carried all over the country from London by the fleeing citizens, and that few places

[1] Mostly from parish registers in Lysons' *Environs of London*.

remained free from it, just as it was said afterwards for the plague of 1665. So far as records show, one would not be warranted in inferring a great provincial prevalence of plague either in 1625 or in 1665. There was plague at Plymouth, and in the south-western counties, under very special circumstances, as we shall see. There was plague also at Norwich, said to have been brought from Yarmouth, and at Colchester the year after. Newcastle, also, which hardly ever escaped the infection when it was afoot, had one of its minor visitations. But, on the whole, it is impossible to show by local evidences that the plague of 1625 was diffused universally over England, either in that or in the following year, or that it grew to a great epidemic in but a few provincial centres[1]. Probably all the plague-deaths in the provinces together, in 1625 and 1626, would not have made a fifth part of the mortality in London.

The interest centres in the plague at Plymouth, with which the outbreaks at Ashburton, Exeter, Dartmouth, Bridport, and perhaps Portsmouth, Rye and other places, may be connected, if not causally, yet in neighbourhood. The first that we hear of sickness at Plymouth is under date July 26, 1625; some of the ships arrived there had been visited with sickness, and the sick had been landed and lodged under sails[2]. It is not called "the sickness," and it is not clear that it was bubo-plague. There may, indeed, have been real plague on board ships of war: Stow says that it was in the fleet in 1603, and there is evidence of its existence now and again in the Venetian galleys of an earlier day. But we are now come to the period of the beginnings of ship-fever, as we shall see in the next chapter; and, for the present, we must not assume that the sickness on board ship in 1625 was all plague, or chiefly plague.

[1] Winchester was probably a fair sample. In the city archives under the year 1625 there is this entry: "Item, it is also agreed that the decayed cottage where Lenord Andrews did dwell, he lately dying of the plague, shall be burned to the grounde for fear of the daunger of infection that might ensue if it should stande." (Bailey, *Transcripts*, etc. Winchester, 1856, p. 110.) In a petition relating to Farnham, Jan. 1628, the town is described as being "impoverished through the plague and many charges," which may mean that plague had been diffused in Surrey and Hampshire.

[2] *Cal. State Papers.*

The ships at Plymouth in July were doubtless a part of the squadron of ninety sail, which sailed thence in autumn, carrying ten thousand men to make war on Spain, in accordance with the anti-Catholic policy which had been forced upon James I. in the last years of his reign, and was now being carried out by Charles I. and Buckingham. This was not the first fruit of that policy. The immediate result of it was Mansfeld's English troops for the recovery of the Palatinate to Protestant rule. That expedition failing to effect a landing was speedily broken with disease, and before it had been many days on shore in Holland was burying 40 or 50 men a day. The fleet eight months later had a similar experience. The ships were victualled with rotten food, and the men were supplied with worthless clothing. As the facts were never investigated, the king having interfered to shield the duke of Buckingham from the attack on him by Sir John Eliot, peculation and jobbery were never proved, although it was known to everyone that honesty was the last quality to be looked for in those about the king and the favourite. The fleet reached the Bay of Cadiz and made a futile demonstration there. It is in the month of November that we begin to hear of sickness. On the 9th Viscount Wimbledon writes from on board the 'Anne Royal' to Secretary Conway that there are not men enough to keep the watches owing to sickness. On December 22, the Commissioners at Plymouth write to the Council that about thirty sail had arrived there with 4,000 soldiers "in such miserable condition as for the most part to be incapable of such comforts as the country would afford them." Captain Bolles, who died since their coming in, declared the occasion of his sickness to be scarcity and corruption of the provisions. Great numbers of the soldiers are continually thrown overboard. Yesterday seven fell down in the streets. The rest are weak, and want clothes, for the supply of which some thousands of pounds were needed. The despatch of December 29, says, "They stink as they go, and the poor rags they have are rotten and ready to fall off if they be touched"[1].

So far there is no word of plague; on the other hand there

[1] *Cal. State Papers.*

is a strong probability that the sickness was ship-fever, or typhus. It is not until the spring of 1626 that the plague is mentioned at Plymouth. On March 18, sickness increases at Plymouth and the plague is wondrous rife. On March 28, the plague is dispersed about the town. On April 5, the sickness increases very much. On the 11th, 40 died last week and twenty houses are shut up; some of the sick died and were buried in less than twenty-four hours. On 8th June, the plague is very bad in Plymouth, and the town is destitute of its best inhabitants. The town-council records bear witness to a rate having been levied for the relief of the plague-stricken, and to attempts as late as 1628 to collect their share of it from those who had fled the town in 1626. The deaths at Plymouth are stated in a manuscript book of the municipal annals to have been 2,000[1].

Meanwhile plague appeared in other parts of Devonshire. In Exeter it had been prevalent sooner than in Plymouth itself; a letter of November 17, 1625, speaks of the afflicted state of the city, and of the weekly contributions for the plague-stricken. Some particulars of the state of Exeter at this time are given in a memorial to the Privy Council by the mayor and bailiffs of the city, dated October 15, 1627. During the great sickness which fell on their city, and was not cleared in sixteen months, all trading was stopped and the inhabitants generally left the town. To appease a mutiny of the more disordered people, who threatened to burn the city, a rate was assessed generally on the city, but most of the inhabitants being absent, the corporation took up the amount at interest on their own credit. The persons whose names are inclosed, being inhabitants who have returned to the city, now refuse to pay the rate assessed in their absence; and the Council is petitioned to summon them before it[2].

[1] MSS. of the Corporation of Plymouth. *Hist. MSS. Commis.* IX. 278. Accounts are given (p. 280) of the monies collected for the relief of the poor and sick people of Plymouth "in the time of the infection of the pestilence from Sept. 29, 1625, to that day A.D. 1627." But that does not imply that the infection lasted all that time. The civic year began with September 29, and the accounts are those that fall within two complete financial years.

[2] *Cal. State Papers.*

On May 17, 1626, the plague is reported to be rife "in Devonshire," and specifically, on July 28, at Okehampton and Ashburton. The epidemic at Ashburton was on the same severe scale as at Plymouth. It began in the end of 1625, but was most fatal in April and May, 1626. The deaths in a twelvemonth were 365, "probably a fourth of the inhabitants[1]." (In 1627 there were only 27 deaths, doubtless from the empty state of the town.) The same summer it is heard of in Dorsetshire. On September 2, the deputy lieutenants and justices of the county petition the Privy Council that the 1000 soldiers who were to be removed from Devon and Cornwall, should not be quartered in Dorset, but in Somerset, as the former was visited with the plague[2]. Perhaps Bridport was the centre of plague referred to. Sometime later in the year, perhaps in November, the bailiffs and burgesses of that town explain to the Council that, although they had subscribed to the loan, yet they were unable to pay the amount subscribed as the town was destitute by reason of a twenty weeks' visitation of plague[3].

The last of this series of outbreaks in the south-west appears to have been at Dartmouth in the summer of 1627. On June 29, it was reported that the plague was so hot there that the inhabitants had left. The mayor wrote on July 19 to the Privy Council that it was true the inhabitants were still away, but the plague had ceased; only 15 houses had been infected, the inhabitants of which had all been removed to the pest-houses remote from the town[4].

Farther east on the Channel coast, Portsmouth had a visitation of plague previous to September 28, 1625, perhaps in connexion with the Cadiz fleet; the mayor and bailiffs, being at the end of their year's office, had refused to take steps to sever the infected[5]. At Southampton, only one house was infected on August 27. The infection is reported also from Rye in 1625, and from Canterbury, where the famous composer, Orlando Gibbons, died in the beginning of June, 1625, "not without suspicion of the sickness," says Chamberlain, but, according to Anthony Wood, of the smallpox. The king and queen lodged

[1] *Notes and Queries*, 6 ser. III. 477. [2] *Cal. S. P.* [3] *Ib.*
[4] *Cal. S. P.* [5] *Ib.*

at Canterbury on June 14; but on July 23 the place had to be avoided "for the great infection."

From Oxford, where the Parliament met on August 1, the vice-chancellor wrote on July 27, that Sir John Hussey came thither infected from London, and died, that Dr Chaloner, being in the same house, was since dead, that the infection was in other parts of Oxford, and that All Souls College was shut up. There was a slight revival of it in January, 1626, which caused the exercises and the sermons at St Mary's to be put off[1]. Anthony Wood gives much the same account as for 1603, and blames the great increase of "cottages" erected by townsmen, to which scholars were enticed.

Cambridge kept free in 1625; but on October 3, three deaths are reported at Trumpington—one Peck, his wife, and maid. On the same date three houses were shut up at Royston, and the infected "translated into the fields[2]."

The outbreak at Norwich was one of the severer degree[3]. It was said to have been brought in the end of June, 1625, from Yarmouth, where nothing is recorded of it. A king's order to the mayor imposed extensive cleansings, &c, but the plague increased from 26 deaths in a week in July, to 40 in September, reaching a maximum of 73 from plague in a week, besides 18 from other causes. On August 27, Mead, the Cambridge don, writes that he had met the Norwich carrier, who told him that the number of burials there the last week was 77, whereof of the plague 67, and but 14 the week before. The infection lingered on until December of the year after (1626), the total deaths from plague having been 1431. The plague at Norwich was made the excuse, by the mayor and aldermen writing to the Privy Council on January 30, 1627, for not contributing towards shipping for the king's service; the city was distressed from inundations and the plague, "many hundreds of houses" standing empty. There appears to have been some plague at Lynn in the end of 1625, a Privy Council order of January, 1626, authorising the fair to be held there, the disease having ceased.

In April, 1627, the bailiffs and aldermen of Colchester offer

[1] *Cal. S. P.* [2] Letter from Mead in *C. and T. Charles I.* 1. 51.
[3] Blomefield.

the same excuse as Norwich; they are unable to set forth any ships as directed on account of the heavy visitation of their town by the plague, the decay of their trade in the new draperies and baize, and the loss of their ships at sea.

Leicestershire, also, would appear to have had another visitation in 1626. On July 28, the muster in that county was respited on account of the shire town and nine or ten other towns being visited with the plague. Of that there is no trace in the excellent county history by Nichols. Leicester, like Bristol and other places, is known to have imposed quarantine against Londoners in the summer of 1625. It is probable that plague was also in Warwickshire in 1626[1].

Among other outbreaks in 1625 was one at Newcastle, but it does not compare in extent with some earlier and later plagues there. On September 10, Lord Clifford writes from Appleby Castle to Secretary Conway that Newcastle is so infected with plague, so ill fortified, and ill neighboured, that 500 men would disarm it. In his own county of Cumberland there was plague in Lord William Howard's house. Sir Francis Howard's lady took the infection from a new gown she had from London, so as she died the same day she took it; they are all dispersed most miserably, with the greatest terror in the world. Cheshire also had the infection in 1625[2].

[1] At Coventry in 1626, £20 was paid to the poor in lieu of a feast at Lammas, by reason of the infection. (Dugdale, *Warwickshire*.)

[2] The following curious extract was sent by J. A. Picton to *Notes and Queries*, 6th ser. I. 314 from the parish register of Malpas, Cheshire, 1625:

"Richard Dawson (brother of the above-named Thomas Dawson of Bradley) being sick of the plague and perceiving he must die, at that time arose out of his bed and made his grave, and caused his nephew John Dawson to cast straw into the grave, which was not far from the house, and went and laid him down in the said grave and caused clothes to be laid upon, and so departed out of this world. This he did because he was a strong man and heavier than his said nephew and another wench were able to bury. He died about the 24th of August. Thus much was I credibly tould. He died 1625.

"John Dawson, son of the above-mentioned Thomas, came unto his father when his father sent for him being sick, and having laid him down in a ditch died in it the 29th day of August, 1625, in the night.

"Rose Smyth, servant of the above-named Thomas Dawson, and last of that household, died of the plague and was buried by Wm. Cooke the 5th day of September, 1625, near unto the said house."

After a clear interval of two or three years, the history of plague begins again in London, and in the provinces. The London plague of 1630 was a small affair (1317 deaths), the city being otherwise so healthy that the christenings exceeded the total burials (9315 to 9237). In 1630, at the same time as the small London outbreak, Cambridge had what appears to have been its most considerable plague, but a very small one at the worst. It began about February 28, caused the colleges to break up and the midsummer assizes to be transferred to Royston, and from first to last produced 214 deaths, known or suspected from plague[1].

Along with it there were a good many cases at Wymondham (Windham), and some straggling cases at Norwich and Colchester, continuing into 1631, some 20 or 30 dying at Norwich of plague in the latter year[2]. The other centre in 1630 was in the north-west. Shrewsbury, an old-world town which seldom escaped, had a localised epidemic in St Chad's parish. It began on May 24 in Frankwell, but was confined to that street by cutting off the residents therein from the rest of the town, and by removing the infected to pest-houses in Kingsland[3]. It continued at Shrewsbury into 1631, and is heard of also at Preston, Wrexham, and Manchester, collections having been made in neighbouring places for the infected[4]. But the one great outbreak of those years fell upon the town of Louth, in Lincolnshire, of which the sole particulars are that the plague from April to the end of November, 1631, swept away 754 persons of whom nearly 500 in July and August[5].

After four years clear in London and in all parts of England (years occupied with the growing quarrel between the king and the Parliament), plague broke out again not far from Louth, where we saw it last, namely at Hull. A century and a half had passed since Hull's last great devastation by plague year after year from 1472 to 1478. It was then

[1] Memoranda of Rev. Thomas Archer, of Houghton Conquest. MSS. Addit. Brit. Museum.

[2] Blomefield. [3] Phillips' *Hist. of Shrewsbury*. *Hist. MSS. Com.* x. pt. 4. p. 498.

[4] *Hist. MSS. Com.* II. 258.

[5] *Hist. of County of Lincoln*, II. 187. *Notitiae Ludae*, p. 41.

a medieval town, with a chain drawn across the mouth of its creek of the Humber, surrounded by great abbeys, and owing its importance to its trade in stock fish from Iceland and the North Sea. In the Tudor times it had experienced one small epidemic about the Blackfriars Gate in 1576, causing about a hundred deaths. The date of the outbreak in 1635 is not given exactly; but, as in the 15th century, it was the peculiarity of Hull among provincial towns that it kept the infection for several years,—down to June, 1638. Business was paralysed, schools shut up, and the town deserted by the wealthier classes. The deaths from plague from first to last are counted at 2730, besides those which occurred in flight to other places. Upwards of 2,500 persons, once in easy circumstances, are said to have been reduced to seek relief, to which the county of York contributed[1]. In 1643 Hull stood a siege, but there is no farther mention of plague; nor did the town suffer in 1665.

The year 1635, which saw the beginning of the Hull plague, at a time when the infection was absolutely quiet in the capital, saw also the beginning of an outbreak at Sandwich, with accompanying cases at Canterbury, and a beginning at Yarmouth, Lynn and Norwich[2], in all which places the infections lingered at a low endemic level for a year or more. The dates are important only as showing that these provincial infections were looking up some months before the sharp outburst in London in the late autumn of 1636 made any sign. In Sandwich, on the 12th of March, 1637, there were 78 houses "visited," and 188 persons infected; on June 30, 24 houses shut up, with 103 persons, some of them lodged in tents; from July 6 to October 5, there were buried of the plague about ten every week in St Clement's parish. Considerable expenses were incurred (more than £40 a week), to which the county of Kent and the other Cinque Ports contributed[3].

Besides these lingering endemics in Kent and Norfolk, the great plague epidemics of 1636 were in Newcastle and London.

[1] Tickell's *Hist. of Kingston-upon-Hull*. Hull, 1798.

[2] Gawdy MSS. (*Hist. MSS. Com.* X. pt. 2), various letters from Sept. 14, 1636, to Nov. 26, 1638, relating chiefly to Norwich.

[3] Boys, *Hist. of Sandwich*, pp. 707—8.

The Newcastle epidemic was both earlier and relatively far more severe than that of the capital. For a town of some 20,000 inhabitants, the following weekly figures[1] indicate a plague of the first degree, comparable to the London death-rates of 1625 and 1665:

Died of plague at Newcastle, within the liberties, from May 7 to December 31, 1636:

Week ending	Plague deaths	Week ending	Plague deaths
May 14	59	July 23	270
21	55	30	366
28	99	Aug. 7	337
June 4	122	14	422
11	99	21	346
18	162	28	246
25	133	Sept. 4	520
July 2	172	11	325
9	184	To end of Dec.	908
16	212	Total to 31st Dec.	5027

Besides in Garthside, from May 30 to October 17, 515, making a total of 5542.

This tremendous visitation of Tyneside is said to have begun in October, 1635, at North Shields, where the infection rested during the winter cold, to begin again at Newcastle in spring. During the height of the epidemic in summer and autumn all trade was suspended, no one being about in the streets or in the neighbouring highways. The means tried to check the infection were fumigations with pitch, rosin, and frankincense. Newcastle had one other visit from the plague, as we shall see, in 1644 and 1645, during and after the siege by the Scots Presbyterian army; but in 1665 it is said to have escaped, although Defoe says that the infection was introduced by colliers returning from the Thames.

The London Plague of 1636.

The London plague of 1636 was one of the second degree, for the capital, and was otherwise peculiar as being rather later

[1] R. Jenison, D.D., *Newcastle's Call to her Neighbor and Sister Towns*. London, 1637.

in the autumnal season than usual. The following table of the weekly mortalities shows how it increased, reached a height, and declined.

	Christened	Buried in all	Buried of plague
Dec. 24	231	170	0
31	195	174	0
1636			
Jan. 7	217	189	0
14	242	174	0
21	220	190	0
28	214	171	0
Feb. 4	227	183	0
11	234	160	0
18	207	203	0
25	198	238	0
Mar. 3	221	198	0
10	231	194	0
17	244	187	0
24	215	177	0
31	193	196	0
Apr. 7	202	199	2
14	221	205	4
21	202	205	7
28	271	210	4
May 5	197	206	4
12	199	254	41
19	171	244	22
26	160	263	38
June 2	189	276	51
9	153	275	64
16	145	325	86
1636			
June 23	149	257	65
30	141	273	82
July 7	152	265	64
14	142	298	86
21	146	350	108
28	183	365	136
Aug. 4	152	394	181
11	166	465	244
18	167	546	284
25	161	690	380
Sept. 1	163	835	536
8	153	921	567
15	166	1106	728
22	172	1018	645
29	168	1211	796
Oct. 6	170	1195	790
13	164	1117	682
20	174	855	476
27	133	779	404
Nov. 3	153	1156	755
10	164	966	635
17	143	827	512
24	162	747	408
Dec. 1	168	550	290
8	175	385	143
15	134	324	79
	9,522	23,359	10,400

The parishes chiefly affected were the same as in 1625 and 1603. Stepney is still wanting from the general bill; but after 1636 it was included therein, along with Newington, Lambeth, Westminster, Islington and Hackney. These omitted parishes doubtless contributed largely, Stepney in particular, so that the total of plague-deaths would have to be increased by perhaps two thousand. The following parishes had the severest mortalities:

	Total deaths	Plague-deaths
St Giles's, Cripplegate	2374	870
St Mary's, Whitechapel	1766	1060
St Olave's, Southwark	1537	847
St Botolph's, Aldgate	1506	735

	Total deaths	Plague-deaths
St Sepulchre's, Newgate	1327	566
St Saviour's, Southwark	1269	742
St Botolph's, Bishopsgate	1239	515
St George's, Southwark	1044	514
St Andrew's, Holborn	922	419
St Giles's in the Fields	863	428

Like the greater plagues of 1603 and 1625, that of 1636 appears to have begun in the suburbs[1]. Taylor, the Water-poet, in reprinting his poem on the plague of 1625, with some notes for 1636, says that of 1076 plague-deaths from April 7 to July 28 (the summation in the annual bill comes to 864), only 40 had occurred within the walls, so that the general infection of the City must have followed that of the Liberties and out-parishes. As early in the epidemic as 31 May, according to a record of the Middlesex Sessions, "the plague increases most at Stepney," wherefore the Greengoose Fair at Stratford was prohibited, (the parish of Stepney extending as far as Shoreditch)[2]. From Taylor we learn that Gravesend and Faversham had calamitous visitations, and that the infection was in many other towns and villages.

The epidemic of 1636 was like the plague of 1625 in having been preceded by much typhus fever in London, and accompanied by the same, as many as 2360 deaths being put down to fever in the plague-year in the classified causes of death now issued regularly (since 1629) in their printed bills by the Parish Clerks' Hall. The letters and state papers of the time bear witness to the usual exodus from the City, the movements of the Court, and personal incidents, which have no farther interest after the samples given for 1625. One incident relating to the worst week of the plague in London in 1636 is preserved: eleven persons were committed to Newgate on 5 October for going with one Samuel Underhill, a trumpeter, who died of the plague, to his grave with trumpets and swords drawn in the night time in Shoreditch[3]. The profession still

[1] Heberden says that it began in Whitechapel, but does not say where he got the information.

[2] *Middlesex County Records*, III. 62. [3] *Ibid.*

makes no appearance in the way of epidemiological writing; but some "necessary directions" were drawn up by the College of Physicians, in substance the same as certain statutes issued on the alarm of plague in 1630[1].

Next year, 1637, the plague continued in London, causing 3082 deaths out of a total of 11,763 in the bills. In 1638 there were only 363 plague-deaths, but the total mortality was 13,624, or nearly 2000 more than in the previous year, when plague alone had claimed its 3000. What were the epidemic types of disease that caused the high mortality in 1638?

Fever in London.

There ought to have been no difficulty in answering the question. The causes of death in the metropolis had been assigned in the books kept at Parish Clerks' Hall since 1604, and had been printed since 1629. The printed series was in the hands of Graunt, from 1629 down to the date of his writing, January 1662; and he did abstract the deaths under each head of disease and casualty from 1629 to 1636 inclusive, and again from 1647 to 1661; but the ten years from 1637 to 1646 inclusive, he omitted as presenting nothing of importance and as being "inconsistent with the capacity" of his sheet of paper[2]. All the original documents prior to 1658 appear to have been lost in the fire of 1666, so that Graunt's omission cannot now be made good. One could wish that the worthy citizen had made no difficulty about the size of his paper. The omitted years are not only those of great political revolution, which may have had an effect upon the public health, but they are of special interest for the beginning of that great period of fever and smallpox in London which continued all through the 18th century.

[1] The College of Physicians reported also in May, 1637, on the causes of plague—overcrowding, nuisances, &c.; among the causes assigned the following is noteworthy: Those who died of the plague were buried within the City, and some of the graveyards were so full that partially decomposed bodies were taken up to make room for fresh interments. (Cited by S. R. Gardiner, *History*, &c., VIII. 237–9, from the State Papers.)

[2] *Natural and Political Reflections on the Bills of Mortality.* London, 1662.

The following section of London mortality, down to the end of our present period, will show, by reference to the total deaths, how important the omitted years are for the epidemiological history.

Year	Plague	Fever	Small-pox	Total deaths
1629	0	956	72	8771
1630	1317	1091	40	10554
31	274	1115	58	8562
32	8	1108	531	9535
33	0	953	72	8393
34	1	1279	1354	10400
35	0	1622	293	10651
36	10400	2360	127	23359
37	3082	—	—	11763
38	363	—	—	13624
39	314	—	—	9862
1640	1450	—	—	12771
41	1375	—	—	13142
42	1274	—	—	13273
43	996	—	—	13212
44	1492	—	—	10933
45	1871	—	—	11479
46	2365	—	—	12780
47	3597	1260	139	14059
48	611	884	401	9894
49	67	751	1190	10566
1650	15	970	184	8754
51	23	1038	525	10827
52	16	1212	1279	12569
53	6	282	139	10087
54	16	1371	832	13247
55	9	689	1294	11357
56	6	875	823	13921
57	4	999	835	12434
58	14	1800	409	14993
59	36	2303	1523	14756
1660	13	2148	354	12681
61	20	3490	1246	16665
62	12	2601	768	13664
63	9	2107	411	12741
64	5	2258	1233	15453
65	68596	5257	655	97306
1666	1998	741	38	12738

The year 1638, and the four successive years 1640–43, have exceptional mortalities, which plague alone can by no means account for. In one of those years, 1641, we know that smallpox was rife, along with plague, in the autumn; in the third week of August there were 118 deaths from smallpox (133 from plague), and in the second week of September 101

from smallpox (185 from plague), the plague continuing at even higher figures all through September and October, while smallpox ceases to be mentioned in the letters of the time[1]. According to earlier and later experience, the epidemic of smallpox would have been followed by a quiet interval of that disease; so that the high mortality, beyond what plague could account for, would have been due to some other epidemic type. There is little doubt that that type was fever, less heard of in letters of the society people because it was, in its steady prevalence from year to year, an infection of the crowded quarters of the poor.

We begin about this period to find fever, or typhus fever, taking that place in the medical history of England which it continued to hold down to the generation before our own. What remains of the history of plague until its extinction in 1665–66, is so closely interwoven with the history of malignant fever, that it will be more convenient to carry the latter on side by side with it instead of in a separate chapter.

The first medical essay upon the malignant fever which got the name of typhus at the beginning of the 19th century, was that of a physician, Sir Edward Greaves, published at Oxford in 1643 in connexion with the sickness in that city while the king and the Royalist army lay there, and with the sickness in the Parliamentary army of the earl of Essex which lay at Reading. Greaves describes the unmistakable characters of spotted fever or typhus, and calls it, in his title "*Morbus Epidemicus Anni* 1643, or the New Disease." In his text he speaks of "this so frequently termed the New Disease." The name of "New Disease" was used also for influenza; but there can be no doubt that typhus did become common in England during the Civil Wars, between the Royalists and the Parliamentarians, which were the first and also the only sieges and campaigns on English soil that really touched the life of the nation.

The continent of Europe had been familiar with the same type of fever ever since the beginning of the 16th century, now in Italy, now in Spain, another time in the Low Countries,

[1] *Cal. State Papers.*

or in Hungary, or in Germany in the Thirty Years' War. Greaves, our first writer on epidemic typhus, had been preceded a whole century by Fracastori, whose description of the fever at Verona in 1505 is perhaps the first account of epidemic sickness free from subservience to ancient or medieval authority, and based upon direct observations made in modern Europe. At the same time typhus or spotted fever was not new to England in 1643. There is always the difficulty whether some epidemics of fever should be called influenza or typhus; but the fever of the Black Assizes, as well as the standing "sickness of the house," was certainly typhus, and so probably was the "new disease" in 1612.

The history of fever in England has been partly traced in the chapter on gaol-fevers in the Tudor period and on the Protean "hot agues," "new sickness," "strange fevers" or influenzas of 1540, 1557–8 and 1580. At a much earlier period, fevers of the same type (with dysenteries, lienteries, and pestilent sore throats) have been described, with whatever details there are, in connexion with the periodic famines, especially since the Conquest. But we are now come to a time in the history when typhus fevers appeared in the country unconnected with gaols or with famines. We are come, indeed, to the new era of epidemics, which is revealed more clearly after the plague was extinguished for good, but was really concurrent with the last half-century of plague, preparing, as it were, to succeed the long reign of that infection. The Civil Wars may be admitted to have given the new types of sickness an impulse, but the wars did not originate them, nor did they serve in any way to establish them as the predominant forms of epidemic sickness for nearly two centuries. Whatever it was in the condition of England that favoured the prevalence of fevers, fluxes, and smallpox, that factor was beginning to make itself felt shortly after the Tudor period ended: it continued in operation through all political changes of Restoration, Revolution, and Georgian rule; and if the conditions at length changed, largely for the better so far as the adult population is concerned, and for the better even as regards infancy, there has followed the "*nova cohors febrium*" of our own time, appropriate to its own state of society, as was

the old troop before it. This theme is really the subject with which a new volume should open; but as the plague-period overlaps its successor the fever-period by half a century, and as one must pay heed to the chronology, it remains to insert some facts about fevers in this place.

Review of Fever in England to 1643.

Of the prevalence of malignant fevers in England in the earlier years of the 17th century we have only occasional glimpses. Thus, in London in November, 1612, there were several deaths of prominent personages. Prince Henry, eldest son of James I., died of a fever in the course of that month, the illness being thus referred to by Chamberlain in one of his letters to Carleton, written on November 12 from London:

"It is verily thought that the disease was no other than the ordinary ague that hath reigned and raged almost all over England since the latter end of summer, which, by observation, is found must have its ordinary course, and the less physic the better, but only sweating and an orderly course of keeping and government. The extremity of the disease seemed to lie in his head [a sure sign of typhus], for remedy whereof they shaved him and applied warm cocks and pigeons newly killed, but with no success."

Sir Theodore Mayerne, the king's physician (who had been driven from Paris by the intolerance of the Galenists towards those who used antimony and other Paracelsist remedies), was a good deal blamed because he had purged the patient instead of bleeding him.

Writing again on the 19th November, Chamberlain says: "On Friday Sir Harry Row, our alderman died, and, same morning, Sir George Carey, master of the wards, of this new disease." Chamberlain's statement that an epidemic fever, which he calls "the ordinary ague," had raged all over England from the end of summer, 1612, is supported by Short's abstracts of the parish registers for that year, while the following year, 1613, stands out as still more unhealthy. The next unwholesome year in Short's tables is 1616; and of that sickly time we have one great personal illustration. Shakespeare died on April 23 at Stratford-on-Avon, after three days' illness of a fever (but

possibly of a chill) having just completed his 52nd year. So far as is known, he was not in failing health. It is a singular coincidence that he made his will on March 25 preceding, the first day of the year, old style; but the customary phrase, "in perfect health and memory (God be praised!)," would have been perhaps varied a little if illness had been creeping upon him. Now the year 1616 is the most unhealthy in Short's tables from the beginning of the century; the parish registers do not bear witness again to so much sickness until 1623, which, as we have seen, was a year of typhus. The winter of 1615–16 was altogether exceptional: warm and tempestuous south-westerly and westerly winds prevailed from November until February; on the 8th February, there were East Indiamen lying in the Downs, which had been at anchor there for ten weeks waiting for a change of wind to take them down the Channel. The warm winds brought "perpetual weeping weather, foul ways and great floods," and brought also an early spring. In the last week of January the archbishop found a nest of young blackbirds in his garden at Lambeth, and had "another sent to him from Croydon about four days after." That was proverbially the kind of Christmas to make a fat churchyard; but it is impossible to say whether one type of sickness, such as fever, predominated, as in the preceding sickly years, 1612–13, and in the next following 1616, namely 1623–24. The following figures from Short's tables will prove, at least, that there was excessive mortality:

In the year 1616, twenty-one parish registers out of eighty-eight examined, showed excessive mortality, the burials being 601 and the baptisms 417, the year 1617 showing a somewhat improved state of health. In the market towns for the same two years, the excessive proportion of burials to christenings is equally striking: of sixteen town registers examined, ten showed a bad state of health in 1616 (714 burials to 568 baptisms), and in 1617, nine towns had 786 burials to 652 baptisms. But neither in town nor country do the years 1616–17 stand out so unhealthy as the years 1623–24. Those two biennial periods are the only very conspicuous ones in Short's list for the first quarter of the 17th century, the year 1613 coming next in unhealthiness.

Let us now seek for any causes such as unwholesome conditions of living upon which these epidemic fevers might have depended. One of the most notorious forms of typhus in the 18th century was the ship-fever. The problem how to destroy its infection in the hulls of transports and ships of war occupied the attention of the men of science, Stephen Hales among the rest. Parliament, eager for any cure of so disastrous a pest, voted some thousands of pounds to a projector whose method, when tried, resulted in nothing but the burning of three ships to the water's edge. This ship-fever became notorious early in the 17th century, having occurred before in 1588. If the Elizabethan naval annals in Hakluyt's collection were less engrossed than they are with adventures and doughty deeds, we should probably have had more glimpses of an unwholesome state of things in the 'tween-decks. At all events there is no doubt that fever infested the shipping of England as well as of France about the year 1625. The conditions on board ship are, of course, special; there might have been ship-fever, when there was no gaol-fever, workhouse-fever, or domestic typhus in general. But what happened on board ship was no bad index of what was happening on shore. The nation, both on sea and on land, was expanding far beyond its old medieval limits, with very crude notions of the elbow-room that it needed. The ideas of cubic space, ventilation, and the like, with which we are now so familiar, had then no existence. A few facts about the shipping, gaols and houses will serve to illustrate this statement.

The fleet which sailed from Plymouth to make war on Spain in the autumn of 1625 consisted of 90 sail, and carried 10,000 men. Whether there was overcrowding would depend, of course, on the size of the ships; and it may be safely said that the largest ship of the fleet was not a fourth part the size of a transport that would be allowed to carry five hundred men today. The expedition came back in a few weeks broken by sickness and mutiny, just as the expedition of Mansfeld for the relief of the Palatinate had fared. The wretched state of the thirty ships which arrived at Plymouth in November, 1625, has been mentioned already. At the same date we read of French ships of war also throwing overboard two or three dead men every day.

There are some more precise figures for French ships in 1627, to be given in the next chapter, which will enable us to measure the provocation to ship-fever afforded by the conditions of a transport service in those years.

Besides ship-fever, in the great typhus period of the 18th century, there used to be named gaol-fever, and workhouse-fever. Of the gaol-fever one hears little in these years. It was severe in the Queen's Bench prison in Southwark in March, 1579; a petition of that date complains that the prison held double the usual number, that "the sickness of the house" was rife, and that near a hundred had died of it there during the previous six years, many more having been sick[1]. "The sickness of the house" is a name suggestive of what was usual. These events of prison life made little stir unless they involved the health of classes far removed from the prison-class, as in the three memorable instances of the Black Assizes at Cambridge, Oxford and Exeter. But it is not certain that even such cases have been all recorded, or that instances of gaol-fever spreading to those outside may not have been more frequent than appears. Whitmore in his book of 1659 on fevers in London and the country, quotes Bacon's remarks upon the Black Assizes of the Tudor period and adds: "and within this eight or nine years there happened the like at Southwark, as I am credibly informed." That would have been in the King's Bench prison some time about 1650, which is not far from the date we have brought the history down to[2].

The overcrowding of the ships and of the gaols had its counterpart in the dwelling-houses of London and other towns such as Portsmouth. The proclamations against the erection of houses on new sites within three miles of the city gates continued to be issued to the time of Cromwell. The effect of them was merely to call into existence a class of poor tenements in odd corners or to overcrowd the existing houses. Thus, on

[1] Strype's ed. of Stow's *Survey of London*.

[2] Rendle (*Old Southwark*, 1878, p. 96) quotes the following from a letter written in 1618 by Geoffrey Mynshall from the King's Bench prison: "As to health, it hath more diseases predominant in it than the pest-house in the plague time...stinks more than the Lord Mayor's dog-house or Paris Garden in August...three men in one bed."

June 27, 1602: "The council have spied an inconvenient increase of housing in and about London by building in odd corners, in gardens and over stables. They have begun to pull down one here and there, lighting in almost every parish on the unluckiest, which is far from removing the mischief[1]." Again, on February 24, 1623, certain inhabitants of Chancery Lane were indicted at the Middlesex Sessions for subletting, "to the great danger of infectious disease with plague and other diseases[2]." Again, in May, 1637, there were found in one house eleven married couples and fifteen single persons; in another the householder had taken in eighteen lodgers[3]. The monstrous window-tax, which did more than anything else to breed typhus and perpetuate smallpox, was not imposed until after the Revolution; but there was enough in the London of the Stuarts to explain the great increase of those diseases.

We have already had evidence of the wide prevalence of spotted fever in 1624, even in the houses of the rich. In the harvest of 1625, Mead, of Cambridge, heard of much sickness which he calls "ague," about Royston and Barkway, localities by no means malarious; so many were ill that the people wanted help to gather the harvest out of the fields. The nature of these "agues" is a question of great difficulty. The intermissions or remissions of the country fevers are clearly enough asserted by Willis and others, whatever they were; at the same time the general characters of the disease, or diseases, are not those of intermittent malarial fever; and "influenza" does not help us. Chamberlain calls the fever of 1624 "the spotted fever," and Sir Theodore Mayerne, physician to James I., in a long opinion upon the king's state of health and the treatment, dated Aug. 20, 1624, introduces a paragraph "Ad Febrem Purpuream," which, he says, was prevalent that year, "not so much contagious as common through a universal disposing cause," seizing upon many in the same house, and destroying numbers, being most full of malignity etc. These various accounts for town and country point to a form of typhus; and we find that

[1] *Cal. S. P.* 1601–3, p. 209.
[2] *Middlesex County Records*, II.
[3] Cited by Gardiner, *History*, VIII. 289.

diagnosis confirmed for the country fevers which were again widely prevalent a few years later, about 1638.

Among other statistics in Graunt's essay of 1662 we find the figures from the register of "a parish in Hampshire" from 1569 to 1658. There were several years of excessive mortality in that period just as in Short's tables, but the worst were 1638 and 1639—the years of high mortality (not plague) in London also. Of that mortality in the Hampshire parish Graunt has given a brief account, which he seems to have based on first-hand information. The parish contained about 2700 inhabitants, and enjoyed average good health during the period of 90 years covered by the figures, the births exceeding the deaths by twelve on an average in the year. In the year 1638 the deaths were 156 and the births 66 (about the average); in 1639 the deaths were 114 and the births 55. The cause of this great excess of mortality in a country parish was, says Graunt, not plague, "but a malignant fever raging so fiercely about harvest that there appeared scarce hands enough to take in the corn; which argues, considering there were 2700 parishioners, that 7 might be sick for one that died; whereas of the plague more die than recover. They lay longer sick than is usual in plague," and there were no plague-tokens.

This considerable epidemic of fever, which must have affected some hundreds of people, occurred in a Hampshire parish. In the very same season (autumn and winter of 1638) we hear of what is obviously the same sickness being epidemic all over the county of Monmouth. On April 23, 1639, the sheriff of Monmouthshire thus explained his delay in executing the king's writ for an assessment: "In January last I sent forth my warrants for the gathering and levying thereof, but there has been such a general sickness over all this country, called 'the new disease,' that they could not possibly be expedited.... Besides, the plague was very hot in divers parts of the county, as Caerleon, Abergavenny, Bedwelty, and many other places[1]." Here the sheriff uses the same name as Greaves put on his title-page five years after, and he distinguishes clearly between the fever and the plague. The mayor and others of Northamp-

[1] *Calendar of State Papers.*

ton, in a memorial to the Recorder, dated May 1, 1638, touching the exclusion of Northampton tradesmen from fairs in the vicinity owing to suspicions of the plague in their town, had been informed by the physicians that some cases were of the plague, and some of "the spotted fever[1]." The same distinction had been made at Norwich, in 1636: in October there was a suspicion of the plague, "but the physicians say it is some other contagious disease which die with the spots[2]." At Northampton, the coexistence of plague and some other sickness is asserted also by the sheriff (Sept. 18, 1638), who had to excuse himself, like so many other sheriffs, for his failure to remit the ship-money: he himself and his servants had had sickness, and the plague was so great and so long in Northampton that the county still allowed £148 a week for relief of the sick. The deaths in that epidemic from March to September were 533[3]. The sheriff of Montgomery, making a like excuse on October 25, 1638, speaks of the plague only: "It pleased God to visit a great part of the county with the plague, and three of the greatest towns, Machynlleth, Llanidloes and Newton[4]." The sheriff of Radnorshire, in his excuse to the Privy Council, on November 14, says he could not collect the ship-money at Presteign "by reason of the plague, which continued there for two years together, and did not cease until the latter end of April last[5]." We may take it, then, that there was a great deal of plague in Wales about 1637 and 1638, that there was also "the new disease," or spotted fever, all over Monmouth and probably other Welsh counties, that the same two forms coexisted at Norwich and Northampton, just as they coexisted in London, and that Graunt's parish in Hampshire in 1638 had probably the fever only.

Short's statistical tables again bear out the concrete history. In 1638, nineteen country parishes, out of ninety-four examined, had 699 burials to 542 baptisms, and in 1639, eighteen parishes

[1] *Cal. S. P.* [2] *Ibid.*

[3] *Ibid.* The coexistence of malignant fever with plague at Northampton in 1638 is decisively shown by particulars of cases published by Woodall, *Op. cit.* 1639. See also Freeman, *Hist. of Northampton*, p. 75 (but under the year 1637).

[4] *Ibid.* [5] *Ibid.*

had 585 burials to 386 baptisms. In the market towns the unhealthy period (which may have been due to plague in great part) is a year earlier. In 1637, ten towns out of twenty-four whose registers were added up, show 1474 burials to 1008 baptisms, the proportion in 1638 for the same number of unhealthy towns being 1438 to 1025.

It would have been one of the country epidemics of those years that Boghurst brings into his account of the plague of London in 1665: "I was told by an ancient woman that in Somersetshire the spotted fever was very epidemical, so that whole families died; but being told that plantan [plantain] was very good, all of them almost took it, which wrought an admirable change, for very few died that took it, whereas before they died very fast." He thinks plantain was as likely to have effected a cure as "higher priced medicines." We shall find a corresponding prevalence of fever described by a competent physician, Whitmore, for rural parts of Cheshire and Shropshire in 1651 and 1658. Thus we have a remarkable epidemiological phenomenon, somewhat new to England unless, indeed, we bring all those spotted fevers and the like under the generic name of influenza. It was in country districts in 1612–13 and from 1623 to 1625, it was extensively prevalent in 1638 in places as far apart as Hampshire, Monmouth and Northampton, it appeared in Berkshire and Oxfordshire in 1643 in connexion with the military movements of the Royalist and Parliamentary armies, it caused a disastrous loss of life in Tiverton within a few weeks of Essex's army passing through the town in 1644; it is heard of again in Shropshire and Cumberland in 1651–52, and in the same parts in 1658, as well as in Somerset, and in London steadily from year to year.

It was in its steadiness from year to year in the poor quarters of towns, as well as in its more frequent recurrences as a country epidemic, that the spotted fever deserved the name of "new disease" in the reign of Charles I. But more than one epidemic fever had been called a "new disease" in England before; and no fewer than five epidemics were so called from 1643 to 1685, of which only one or two can be classed among the influenzas.

If it had been possible to keep in mind the history of

sicknesses from century to century or even from generation to generation, the "new disease" might have been recognised as not unlike the type that overran England in 1087, that was described by William of Newburgh in 1196, by Matthew Paris in 1258, and by Trokelowe in 1315–16. The conditions producing it or favouring it were not, indeed, the same in all particulars in the medieval period, in the Tudor period, and in the Stuart period. In the medieval period, the extreme want and misery which brought epidemic sickness were due to occasional sharp famines at long intervals, from failure of the crops. In the Tudor period epidemics were still so occasional (so far as is known) that something more special will have to be blamed for them than the swarms of vagrants and criminals all over England, which made the reign of Henry VIII. notorious, and were still a source of trouble until late in the reign of Elizabeth; the four chief periods were in 1540, 1557–8, 1580–82, and 1596–97 so that some special cause would have to be assumed in those years to account for their peculiar "epidemic constitution." Almost from the beginning of the Stuart period, the seasons of fever (to say nothing of flux and smallpox), seem to come in quicker succession; they are heard of in 1612–13, 1623–25, 1638, 1643–44, 1651, 1658–9, and 1661–65, and heard of in those years over wide tracts of rural England as well as in London and other towns. It was from such experiences that the doctrine arose, so unintelligible to us now, of an "epidemic constitution of the air," which may be traced, indeed, to much earlier writings than those of the 17th century, but finds its most frequent applications in the latter. The fevers were in part contagious and not contagious; contagion could not explain them all, and yet there was an undoubted infective element in them. The universality or generality of their incidence was accounted for by assuming, on the one hand, something common in the state of the air and, on the other hand, some common predisposition in the bodies of men, which might itself have had seasonal causes. We have now only one name for such common infection of the air, namely influenza; and it is significant that the catarrhal influenzas of 1658 and 1659 were regarded by some at the time as only the appropriate vernal form of the fever which in the hot

weather of 1657 and 1658 had prevailed almost in the same general way as influenza, but with the symptoms of typhus. One thing which should not be overlooked, is that plague was still in the country, not always at the same time as the fever, and perhaps not usually coincident with it. Another thing, which will come out in its due order at a later part of the history, is that after the extinction of plague, fever became far more steady in the towns from year to year, and in certain years was not less prevalent in influenza-like epidemics all over the country. One might offer some suggestions as to the meaning of these epidemiological phenomena; but it will perhaps be more convenient that critics who have a speculative turn or a craving for generalities should exercise the one or gratify the other at their own risk.

Along with the prevalence of plague in 1637–38 in many towns of Wales, we may associate the outbreak of 1638 in Gloucester on the one side and in the small Salopian town of Clun on the other. From a letter of the Privy Council to the justices of Gloucestershire, it appears that a rate in aid of the plague-stricken in the city had been imposed upon the county in December, 1637, and that the infection still continued in Gloucester in September, 1638. Contributions made in Bridgenorth for the relief of the visited in Clun appear to belong to the same year. At Reading a tax for the "visited" had been collected once or oftener between 1638 and 1641. In 1641 the town of Leicester was put to some expense (£46. 8*s*. 7*d*.) in watching to keep out the sickness which prevailed in Thurmaston, Birstal, Whetstone and Oakham. The very severe plague in Stamford the same year would have been the most intense part of the epidemic in that corner of England; "Camden," quoting from bishop Sanderson's manuscript, says that it began at St James's tide, 1641, and ended in March following, whereof are said to have died between 500 and 600 persons[1].

Another centre of plague in 1641 was Congleton, in Cheshire, if we may trust the accuracy of the date given in a manuscript written some time after and seemingly based upon tradition[2].

[1] Camden's *Britannia*, ed. Gough, II. 244.

[2] *Notes and Queries*, 6th series, IV. 199.

The infection was traced to a box of clothes which had belonged to one dead of the plague in London and were sent to the dead man's relations at North Rede Hall. The family who received the box "caught the infection and died." It spread "all over the country," and came to Congleton, where it made dreadful ravages. The traditions which the anonymous narrator has put on record are, indeed, those of a plague of the greater degree—stories of corpses that no one would bury, of the sick left to their fate, of money dropped into water before it changed hands. This somewhat doubtful narrative ends with the statement that "the greatest part of the inhabitants died."

The period from 1643 to 1650 contains all the outbreaks of plague that remain, whether in London or the provinces, until we come to the final explosion of 1665. In London the plague continued at a low endemic level from the outburst of 1636 until 1648, the deaths in 1647 reaching the considerable figure of 3597. This series of plague-years has no other interest than as showing how regularly every season the infection increased from a few cases in May or June to a maximum in September or October. One incident, out of many, may find a place. In August, 1647, Sir Philip Stapleton, one of the Eleven Members, leaders of the Presbyterian party, who were accused of treason by the Army, went over to Calais with five more of the accused, and died of the plague almost as soon as he landed. The people of the house where he died made the rest of the party pay them £80 before they would let them come forth, for bringing the sickness into their house[1].

The plagues in provincial towns were in those years much more serious relatively than those in London. All of them occurred in towns that were besieged, or had been besieged, or had been occupied by bodies of troops or by garrisons. At the same time most of them were towns which had suffered plagues before. But the first effects of the war in the way of epidemic sickness were not of the type of plague.

[1] *Hist. MSS. Com.* v. 173.

War-typhus in Oxfordshire and Berkshire.

It was in the spring and summer of 1643 that England had a first experience of the war-typhus which had been familiar to the continent of Europe for a century and a half, having reached perhaps its greatest prevalence in the Thirty Years' War. It is only in the sense of war-typhus that Shakespeare's boast, put into the mouth of John of Gaunt, holds good:

> "This fortress, built by nature for herself,
> Against infection and the hand of war."

The medieval civil wars in England do not seem to have bred infection among the people, unless, perhaps, during the anarchy of Stephen's reign: there is reason to think that the faction-fights of York and Lancaster had no such result. But the wars of the Parliament against the Royalists produced war-sickness in its most characteristic form, and that too, at the very beginning of the struggle.

The existence of sickness in 1643 among the troops of the Parliament in Berkshire and Oxfordshire, under the earl of Essex, is briefly stated by Rushworth. But, for the first time in the history, we find a medical account of the type of sickness, of its circumstances, and of the extent of its prevalence, which is not without interest even for the military history. It happened that the afterwards celebrated Dr Thomas Willis, chemist, anatomist, physiologist and physician, was at Christ Church, Oxford, in 1643, being then aged twenty-one, and intending to enter the Church. In 1659 he published at the Hague his first medical essays, one on Fermentation and the other on Fevers[1]; and in the latter he recalls many particulars of what he had seen in his earlier years in and around Oxford. The sickness of 1643 was also the subject of a tract published that year in Oxford, by his majesty's command, by Sir Edward Greaves, physician to the king, which appears to have been in sufficient request in the town to be reprinted within the year[2].

[1] *Diatribae duae de Fermentatione et de Febribus.* Hagae, 1659.

[2] *Morbus Epidemicus anni* 1643; *or the New Disease.* Published by command of his Majesty. Oxford, 1643.

The preceding events may be briefly summarized[1]. In November, 1642, the king moved from Oxford with his army towards London and seized Brentford. The forces of the Parliament, under Essex, concentrated round the capital, where they were joined by the trainbands of the City, so that the king recrossed the Thames at Kingston and retired upon Reading and Oxford. All through the months from January to April 1643, tedious negociations went on for a treaty, the details largely relating to the places to be occupied by the Parliamentary troops on the one hand (around Windsor) and by the Royalist troops on the other (in Oxfordshire and Bucks). In April the negociations fell through, and Essex came before Reading on the 15th, with an army of 15,000 foot and 3000 horse. The king and prince Rupert attempted to raise the siege by a march from Oxford, but were stopped at Caversham bridge, and on the 26th April, Reading was surrendered to the Lord General, the garrison marching out the day after.

The siege had lasted only eleven days; the Royalist commandant was sentenced to death at Oxford for betraying the town, but was pardoned. When Essex entered Reading he found the place "infected," and a great mortality ensued among his men, who were discontented at the want of plunder and of pay. In June he moved his troops across the chalk downs to Thame, on the borders of Bucks; but the weather being wet and unseasonable in the early summer, and afterwards hot, the sickness so increased among them that "he judged the design upon Oxford impracticable" (Rushworth), and on July 9, wrote to the Parliament advising a peace. In his letter, Essex explained that it was impossible to keep the counties from being plundered, "so that they must suffer much wrong, and the cries of the people are infinite." Eventually he brought what remained of his army to the neighbourhood of London, and having received 2000 recruits from the City, he held a muster on Hounslow Heath, when his whole force amounted to 10,000 men. With his recruited army he marched to the relief of

[1] From Rushworth.

Gloucester[1], raised the siege, and on September 20 won the (first) battle of Newbury.

The realities of that inactive summer at Reading and Thame may be conceived from what Willis tells us of the state of things within the Royalist lines in Oxfordshire. These things, he says, "fell under our own observation," he being then at Christ Church and not yet entered on the physic line.

In the spring of 1643, Reading being held for the king,

"In both armies there began a disease to arise very epidemical; however they persisting in that work till the besieged were forced to a surrender, this disease grew so grievous that in a short time after, either side left off and from that time for many months fought not with the enemy, but with the disease; as if there had not been leisure to turn aside to another kind of death....

Essex's camp moving to Thame, pitched in the places adjacent, where he shortly lost a great part of his men.

But the king returned to Oxford, where at first the soldiers, being disposed in the open fields, then afterwards among the towns and villages, suffered not much less. For his foot (which it chiefly invaded) being pact together in close houses, when they had filled all things with filthiness and unwholesome nastiness and stinking odours (that the very air seemed to be infected) they fell sick by troops, and as it were by squadrons. At length the fever, now more than a camp fever, invaded the unarmed and peaceable troops, to wit, the entertainers of the soldiers, and, generally, all others: yet at first (the disease being but yet lightly inflicted) though beset with a heavy and long languishment, however, many escaped. About the summer solstice this fever began also to increase with worse provision of symptoms, and to lay hold on the husbandmen and others inhabiting the country, then afterwards spread through our city and all the country round for at least ten miles about. In the mean time they who dwelt far from us in other counties remained free from hurt, being as it were without the sphere of the contagion. But here this disease became so epidemical that a great

[1] "The City, with much emotion, ranks its trained bands under Essex: making up an Army for him, despatches him to relieve Gloucester. He marches on the 26th [August]; steadily along, in spite of rainy weather and Prince Rupert; westward, westward; on the night of the tenth day, September 5th, the Gloucester people see his signal-fire flame up, amid the dark rain, 'on the top of Presbury Hill;'—and understand that they shall live and not die. The King 'fired his huts,' and marched off without delay. He never again had any real chance of prevailing in this war...The steady march to Gloucester and back again, by Essex, was the chief feat he did during the war; a considerable feat, and very characteristic of him, the slow-going inarticulate, indignant, somewhat elephantine man." Carlyle, *Letters and Speeches of Cromwell.*

part of the people was killed by it; and as soon as it had entered a house it ran through the same, that there was scarce one left well to administer to the sick. Strangers, or such as were sent to help the sick, were presently taken with the disease; that at length for fear of the contagion, those who were sick of this fever were avoided by those who were well, almost as much as if they had been sick of the plague.

Nor indeed did there a less mortality or slaughter of men accompany this disease; because cachectic and phthisical old men, or other ways unhealthful, were killed by it; also not a few children, young men, and those of a more mature and robust age. I remember in some villages that almost all the old men died this year, that there were scarce any left who were able to defend the manners and privileges of the parish by the more anciently received traditions[1]."

Willis recalls how this epidemic disease changed its type as the season wore on. At first it was a "putrid synochus," which seemed to be helped by a sweat or a looseness; a relapse or renewal followed the crisis. Later, it became a continual fever of six or seven days, with no crisis; when the fever ceased the sick kept their beds, sometimes raging, more often in a stupor, great weakness continuing, and sometimes convulsions ensuing. About midsummer "the disease betrayed its malignancy by the eruption of whelks and spots." It would often begin with an insidious languishing, the strength being totally withdrawn. At length buboes appeared in many, as in the plague. At this time, during the dog-days, the disease began to be handled, not as a fever, but as a lesser plague—by vomits, purges, and sudorifics. The autumn coming on, the disease by degrees remitted its wonted fierceness, so that fewer grew sick of it, and of them many grew well. At the approach of winter the fever almost wholly vanished, and health was fully restored to Oxford and the country round about. Among the victims are mentioned "some belonging to the king's and queen's Court, with a few scholars[2]."

Of the causes, Willis says that, so far as concerned the army, the evident causes were "errors in the six non-naturals." The spring was very moist and "flabbery," with almost continual showers, to which a hot summer succeeded. The tract upon

[1] From the translation by S. Pordage. London, 1681.

[2] Anthony Wood, II. pt 1. p. 469.

the Oxford fever by Greaves, a short piece of some 25 pages, which was written for use in the city during the epidemic, bears out the account by Willis, without developing the doctrine of increasing malignancy. He is concerned to prove that it was not the plague "as the relations and hopes of your enemies, and the fears of others, have suggested." One of his proofs is the insidious mode of invasion, which Willis ascribes to the sickness in its later type—great weakness without any manifest cause appearing, such as sweating or looseness, so that even strong men were prostrated, with a quick, weak and creeping pulse, sometimes intermittent, with pains in the head, vertigo &c. The most distinctive thing was the spots; "But what need we any farther signs than the spots, which appear upon half the number, at least, of those that fall sick?" Greaves seems to claim that Oxford had some immunity for a time: "God hath been most merciful to this city in sparing us heretofore, when our neighbours round about us were visited."

Among the causes, he mentions putrid exhalations from stinking matters, dung, carcasses of dead horses and other carrion; "and were there care taken for the removing of these noisome inconveniences, and keeping the streets sweet and clean, it would doubtless tend much to the abatement of the disease." The diet, also, may have had something to do with it; more particularly the brewers should dry their malt better, boil their beer longer, and put in a sufficiency of hops. But the great cause was the presence of the army.

"We need not look far for a cause where there is an army residing, which the Athenians called to mind in their calamity, or as Homer speaks of his Greeks:

εἰ δὴ ὁμοῦ πόλεμός τε δαμᾷ καὶ λοιμὸς Ἀχαιούς.

—it being seldom or never known that an army, where there is much filth and nastiness in diet, worse lodging, unshifted apparel, etc., should continue long without contagious disease." Whole families were infected, "and seldom in any house where sick soldiers of either side are quartered, but the inhabitants likewise fall sick of the same disease."

There appears to have been the almost inevitable doubt in some minds, whether the disease were contagious: "But if anyone be yet obstinate, and will not believe it contagious, let

him go near and try." Among the remedies, he mentions a favourite one of the empiric sort, "Lady Kent's powder," which Willis also refers to; but Greaves, as became an academical physician, would not admit that it had any advantage over medicines of known ingredients.

This widespread epidemic of typhus, perhaps not without some relapsing fever, and, according to what Willis says in one of his general chapters, complicated, in its diffusive form in the villages around, "with squinancy [sore throat], dysentery, or deadly sweat," is the only one medically recorded of the Civil Wars. But there was certainly a renewal of it, in the same circumstances, next year at Tiverton; and it seems probable, from the heavy mortality which the parish registers witness to in that year (1644) that some kind of epidemic sickness had spread far and near. Thus, in Short's abstracts of the burials and christenings in country parishes and market towns, the years 1643 and 1644, and especially the latter, stand out as the most unhealthy for a long time before and after, the next sickly period, as we shall see, being the years 1657–1659. In the year 1643, out of eighty-eight country registers examined, twenty-nine showed a sickly death-rate, although the disproportion of births to deaths does not appear great (821 to 847). That was the year of the epidemic fever in Berkshire, Oxfordshire and Bucks. Next year, which was the year of the Tiverton epidemic, there are again twenty-nine country registers indicating unusual sickness (715 baptisms to 938 burials). In nineteen out of twenty-four market towns, the same two years come out still more unhealthy (844 births to 1193 deaths in 1643 and 1008 births to 1647 deaths in 1644). The registers examined by Short were mostly from Northern and Midland parishes; but they included two or three from Devonshire, and among his market towns was Tiverton. We shall now see what these bald figures mean in that concrete instance.

War-typhus at Tiverton in 1644.

Tiverton was then a town of some 8000 inhabitants, mostly occupied in the weaving industry. On July 5, 1644, Essex

arrived with his army on his way to Cornwall to subdue prince Maurice, and lay there till the 18th. The diary of one farmer Roberts has an entry that Mr Thomas Lawrence, who came from Tiverton, reported to him that the earl had 350 and odd carriages, and of horse belonging thereto for draught 2000[1]. This would have been his large artillery train, baggage and ammunition waggons, etc. His infantry would be some 6000, and his cavalry perhaps 1000. The king's force meanwhile advanced after Essex, and on July 25 lay in the great meadow at Crediton. They had advanced by Yeovil and may or may not have passed through Tiverton. The two armies came to blows in Cornwall, a prolonged series of encounters in the country around Lostwithiel in wet August weather ending in the escape of Essex to the coast, the retreat of his cavalry through the Royalist lines, and the surrender of the infantry on 1st September. The disarmed foot-soldiers were convoyed back to Poole and Wareham, and did not trouble Tiverton again. The retreating cavalry passed that way, but did not enter the town, which was now held by the Royalists. But the king's army came back by the way of Tiverton, which they reached on Saturday, the 21st September. They had got no farther than Chard on the 30th, and may have halted in Tiverton some days. A Royalist garrison of 200 men was left in it, and held the place until October 1645, when it was taken by Fairfax after a short siege[2].

Tiverton was thus occupied by both armies in the summer and autumn of 1644, that of Essex having been quartered in and around the town for a fortnight in July. A serious epidemic followed, especially in the suburb on the western side of the Exe. The particulars of it are in the parish register, from which it would appear that the sickness began in August and lasted until November. The greatest mortality was in October, when 105 were buried, the whole mortality of the year having been 443. The ordinary monthly burials would hardly have exceeded a dozen or fifteen; and as the 105 burials in October would have meant some eight or ten times as many sick, it is not

[1] Dunsford's *Histor. Mem. of Tiverton*, p. 184.

[2] The military events from Rushworth.

surprising to read that the town was desolate, and that grass grew in the streets[1]. Of this epidemic there are no medical particulars; but it appears from the parish register that it was known as "the sweating sickness." It would hardly have been so called if sweating had not been a prominent symptom. Besides the English sweat proper, with its five epidemics from 1485 to 1551, we have had occasion to notice a sweating type in several epidemics of fever. That symptom was so marked in the epidemic of 1558 at Southampton, Portsmouth, and Isle of Wight when they were full of troops, that Dr John Jones, who had personal experience of it, compares it to the sweat proper. It was a sufficiently prominent symptom in the Oxford gaol-fever of 1577 for the *sudor Anglicus* to be called to mind. In the English fevers and influenzas of 1580–82, a sweat or a lask is mentioned by Cogan as a least occasional; but the fevers of the same years on the Continent had so often the sweating character that it was sometimes said the English sweat had come back. Lastly for the war-fevers of 1643 around Reading and Oxford, Willis asserts in more than one place the occurrence of sweats, critical or giving relief for a time in the milder form, "deadly sweats" in fevers of an aggravated type. To anticipate somewhat, it may be mentioned also that a sweating character is recorded of some cases of the perennial London typhus at its worst period in the middle of the 18th century.

Admitting all these facts, we must still hold to the opinion expressed in the chapter on the Sweating Sickness, that sweating was never again the *signum pathognomicum* of a whole epidemic, as it had been of the sudor Anglicus in its five outbursts. But if there be gradations of type, or approximations of typhus to sweating sickness (as well as to influenza), then we may perhaps take the Tiverton epidemic as coming nearer than any other to the sweating sickness, on the strength of the name given to it in the parish register.

Nothing is known of sickness in the army of Essex, which lay at Tiverton from 5th to 18th July, 1644. It suffered much in the fighting in Cornwall, and the Parliament on 7 September sent to Portsmouth arms for 6000 foot and 6000 suits of clothes

[1] Dunsford, *Histor. Memoirs of Tiverton.* Harding, *Hist. of Tiverton.*

and shirts for the infantry who had surrendered and been convoyed back along the coast. The king's troops which occupied Tiverton on 21 September on their way back, had doubtless suffered also, from the campaigning in wet fields and miry ways, and are known to have been discontented for want of pay. Probably the epidemic at Tiverton was due to aggravation of the usual circumstances of war. It must be classed as a form of typhus; while its distinctive character of sweating might find an explanation, on the analogy of the sweat of 1485 in London after the arrival of Henry VII. from Bosworth Field, if we had sufficient reason to suppose that the soldiers who successively occupied Tiverton were not themselves suffering from fever. Contact alone, especially the contact *en masse* of men reduced by hardships and disorderly in their habits, will sometimes serve to breed contagion among a population unlike them in these respects. The converse of that principle, namely that contagion need not follow from the introduction of developed sickness *en masse*, finds an illustration in the case of Tiverton itself within little more than a year after the epidemic of 1644. In November, 1645, Fairfax lay at Ottery St Mary with his army, pending the investment of Exeter. On account of much sickness and heavy mortality among his infantry (not medically described) he removed them on December 2, to Crediton and ultimately to Tiverton, which was supposed to be a healthier situation and became his head-quarters until January 8, 1646[1]. But no outbreak in the town is mentioned, and almost certainly none occurred; the health of the place continued to be good every year of the time that it was under the rule of the Parliament, as the parish register proves. On the other hand Totness, which was occupied by the same convalescent force after it left Tiverton, had a severe epidemic of plague in the end of the year, 1646.

Plague in the Provinces during the Civil Wars.

The type of sickness, after the first two years of the war, does not appear to have been typhus-fever, but always the old

[1] Rushworth. Moore, *Hist. of Devonshire*, I. 149.

bubo-plague of the towns. So far as the history is known, the experience of war-sicknesses upon English soil began in 1643 and ended in 1644, except in the instance of Fairfax's troops at Ottery St Mary in November, 1645.

Perhaps the "new model" of the Parliamentary forces, after the pattern of Cromwell's Ironsides, may have had something to do with the immunity of England from war-typhus in all the marchings and counter-marchings, battles, occupations and sieges, from 1645 to the end of the Civil Wars. Cromwell pointed out to Hampden that the army of Essex was composed of "a set of poor tapsters and town-apprentices," and gave it as his opinion that these were not the men to win with. When the original commanders, Essex, Manchester, Sir W. Waller, and others, had retired in 1645, in terms of the self-denying ordinance, the army of the Parliament acquired a new character under Fairfax and Cromwell: it contained a large proportion of "men of religion," especially among the officers; and there is sufficient evidence that the war was in future carried on so as to produce as few as possible of those effects of campaigning among the people at large which had marked the Thirty Years' War in Germany and had attended the operations of Essex and the Royalists in 1643 and 1644.

What remains to be said of the epidemics of the Civil Wars relates almost exclusively to plague, with an occasional reference to the spotted fever which was widely prevalent in the autumn of 1644. These epidemics of plague in the English provinces, during the political troubles, more numerous than usual from 1644 to 1650, are the last on English soil until we come to the final grand explosion of 1665–66.

In 1644 there were two principal centres of plague (besides London), namely Banbury, and the valley of the Tyne. Banbury was near enough to the Royalist head-quarters to have shared in the fever-epidemic of 1643; in that year the burials of 58 soldiers are entered in the parish register, besides a large excess of burials among the civil population (total of 225 deaths in the year as against an annual mortality in former years ranging from 30 to 98). The siege by the Parliamentary forces did not begin until July 19, 1644, and ended in the surrender of

the castle in October. The epidemic of plague may have begun as early as January, a soldier having "died in the street" on the 16th; but it is not until March 1644, that plague-deaths appear in the register. In that month there were 10 deaths from plague, in April 34, and so until November, when there were 2, the total mortality from plague having been 161. After the plague ceased, the town remained otherwise unhealthy until 1647[1].

The information as to Newcastle and Tyneside comes from the observant Scotsman, William Lithgow, who was with the Presbyterian army when Newcastle was stormed on October 20, 1644[2]. The town had suffered heavily from plague, as we have seen, in 1636, and there had been a slighter outbreak in 1642. Although the state of things during the siege in 1644 was wretched in the extreme, there does not appear to have been plague until after the surrender. The infection was already at work, however, in places near. Thus Tynemouth Castle was surrendered by the Royalist commander, Sir Thomas Riddell on October 27: "The pestilence having been five weeks amongst them, with a great mortality, they were glad to yield, and to scatter themselves abroad; but to the great undoing and infecting of the country about, as it hath contagiously begun" (Lithgow). Among the places infected were Gateshead, Sandgate, Sunderland, and many country villages, the plague being reported in Newcastle itself in 1645 as well as in Darlington[3].

The year 1645 was one of severe plague in several towns at the same time, some of them in a state of siege and all of them occupied by troops. The largest mortality was at Bristol, being proportionate to its size. The town was taken by prince Rupert on July 22, 1643, and was held by a strong garrison for two years and some weeks. It was towards the end of the Royalist occupation that the plague broke out, probably in the spring of 1645[4]. On the 16th May, Sir John Culpepper wrote to Lord Digby: "The sickness increases fearfully in this city. There died this week according to the proportion of 1500 in

[1] Beesley's *Hist. of Banbury*, p. 387.

[2] In Somers's *Tracts*. Scott's ed. v. 294. [3] Sykes.

[4] Clarendon, referring to a proposed Royal visit to Bristol in April says: "The plague began to break out there very much for the time of the year."

London[1]." When it had been stormed by Fairfax and Cromwell in September 1645, it was found that prince Rupert's garrison consisted of 2500 foot, and about 1000 horse. The auxiliaries and the trained bands of the town were reduced in June to about 800, and of the 2500 families then remaining in the town, 1500 were in a state of indigence and want[2]. In Cromwell's despatch of September 14 to Mr Speaker Lenthall he says: "I hear but of one man that hath died of the plague in all our army, although we have quartered amongst and in the midst of infected persons and places[3]." The deaths from plague in the whole epidemic approached 3000, according to the MS. calendars[4].

While this was going on within the walls of Bristol, an epidemic of plague more severe for the size of the town was progressing at Leeds. The town had been taken by Fairfax on January 23, 1643, and had remained in the quiet possession of the Parliament, under a military governor. In August, 1644, there were buried 131 persons, "before the plague was perceived," says the parish register; which means that the excessive mortality was not from plague, but probably from the spotted fever which reigned that autumn in other places in the North. The plague proper began with a death in Vicar-lane on March 11, 1645. The weekly bills of mortality which were ordered by the military governor showed a total mortality, from March 11 to December 25, of 1325. It raged most in Vicar-lane and the close yards adjoining; it was also very prevalent in March-lane, the Calls, Call-lane, Lower Briggate, and Mill-hill. The largest number of burials in a week (126) was from July 24 to 31; the mortality kept high all through August and September (60 to 80 weekly), and declined gradually to 3 in the week ending Christmas-day. Whitaker estimates that probably the fifth part of the population died, and he cannot discover any person of name among the victims. The air was so warm and infectious that dogs, cats, mice and rats are said to have died (of rats and mice it can well be believed), and that several birds dropped

[1] *Cal. State Papers.* [2] Rushworth.
[3] *Letters and Speeches*, I.
[4] Seyer's *Memorials of Bristol*, II. 466.

down dead in their flight over the town[1]. This appears to have been the only visitation of plague in Leeds, at least since the medieval period.

The plague of Lichfield in 1645–46, like that of Bristol, went on during a constant state of military turmoil. On April 21, 1643. the Close was taken by prince Rupert and was held as a Royalist stronghold until July 26, 1646, the king having repaired thither after his defeat at Naseby in June, 1645, and again in September. The plague is said to have been active both in 1645 and 1646; in twelve streets there occurred 821 deaths, the largest share (121) falling to Green Hill[2]. In what way the state of siege may have contributed to the plague is uncertain. The fosse was drained dry at one stage, and was choked with rubbish at another. Many of the inhabitants of the town would appear, from the 4th article of the capitulation, to have taken refuge with their effects within the fortified Cathedral Close, which was almost enclosed by water. This was one of several outbreaks of plague that Lichfield had suffered since early Tudor times.

Minor plague outbreaks of 1645 were at Derby and Oxford. Of the latter we have a glimpse from Willis of Christ Church.

"Sometime past in this city [Oxford] *viz.*, 1645, the plague (tho' not great) had spread. Doctor Henry Sayer, a very learned physician, and happy in his practice, many others refusing this province, boldly visited all the sick, poor as well as rich, daily administered to them physic, and handled with his own hands their buboes and virulent ulcers, and so cured very many sick by his sedulous though dangerous labour. That he might fortifie himself against the contagion, before he went into the infected houses, he was wont only to drink a large draught of sack, and then his perambulation about the borders of death and the very jaws of the grave being finished, to repeat the same antidote.

After he had in this city, as if inviolable as to the plague, a long while taken care of the affairs of the sick without any hurt, he was sent for to Wallingford Castle, where this disease cruelly raged, as another Æsculapius, by the governor of the place. But there, being so bold as to lie in the same bed with a certain captain (his intimate companion), who was taken with the plague, he quickly received the contagion of the same disease; nor were the arts then profitable to the master which had been helpful to so many others, but there with great sorrow of the inhahitants, nor without great loss to the

[1] Whitaker, *History of Leeds*, p. 75. [2] Harwood, *Hist. of Lichfield*, p. 306.

medical science, he died of that disease." He treated the sick, in the prebubonic stages, by a vomit of Crocus Metallorum, and then by diaphoretics[1].

None of the other localized epidemics of plague in those years would appear to have been of the first magnitude. Thus, the 22 deaths from plague at Loughborough from 1645 to May 14, 1646, and the renewed prevalence, after a year's interval, (83 plague-deaths from July 20, 1647 to March 25, 1648)[2], are samples of local mortalities from plague that other parish registers might bear witness to if they had been examined by antiquaries as closely as Nichols examined those of Leicestershire.

Newark was one of the towns which suffered much during the Civil War. Besieged time after time, it was at length surrendered to the Parliament on May 6, 1646. A letter written shortly after the surrender says[3]:

"Truly it is become a miserable, stinking, infected town. I pray God they do not infect the counties and towns adjacent....By reason of the sickness in divers places, the officers dare not yet venture to fetch out the arms...Tradesmen are preparing to furnish their shops...but the market cannot be expected to be much whilst the sickness is in the town."

The parish register of Newark bears no witness to deaths from plague; but that of the adjacent parish of Stoke, in which stood the Castle and the suburb of Newark surrounding it, has numerous entries of plague-deaths, beginning with one some three weeks after the surrender, on May 28, 1646, and continuing through July, August, and September. Several of the same household are buried in one day, one is "buried in the field," another "in his croft." The vicar sums up the mortality thus: "There dyed in the towne of Stoke, 1646, eight score and one, whereof of the plage seven score and nineteen." The whole deaths in Stoke parish the year before had been nine, and the year after they were six[4]. If the plague had been at all proportionate in Newark town itself, the deaths would have far exceeded 159; but, as the parish register does not record plague-

[1] Pordage's translation of Willis's *Remaining Works*, p. 131.
[2] Nichols, III. 893.
[3] Cornelius Brown, *Annals of Newark*. London, 1879, p. 164.
[4] *Ibid.*

deaths at all, it may be inferred that the infection lay mostly around the Castle.

Whitmore speaks of having practised in the plague in Staffordshire in 1647–8, and there is some other evidence, without particulars, of an epidemic in the town of Stafford.

One more epidemic of plague is reported from the theatre of Civil War in the south-west, the outbreak at Totness in 1646–7. In the parish register there is a burial entered on July 30, 1646, "suspected she died of the plague." A leaf of the register has the following: "From December 6, 1646, till the 19th October, 1647, there died in Totness of the plague 262 persons"—a number greater than the register shows in detail. The stereotyped remark is added, that the town was deserted and that grass grew in the streets[1]. For months before the first suspected case of plague in 1646, Totness had been occupied by one body of troops after another. In November or December, 1645, Goring's Royalist cavalry, to the number of nearly 5000, were quartered at Totness and two or three other places near. On January 11, 1646, Fairfax came with his army to Totness for the siege of Dartmouth, which was carried by storm on the 20th. The Lord General then withdrew to resume the investment of Exeter. Before doing so he issued warrants to four Hundreds to assemble their men at Totness on the 24th January. The men came in to the number of about 3000, and a regiment was formed from them[2]. What connexion with the plague in the end of the year all this military stir at Totness may have had, it would not be easy to determine. There had been a great deal of sickness in the army of Fairfax while it lay at Ottery St Mary in the latter half of November, 1645. "By reason of the season," says Rushworth, "and want of accommodation, abundance of his army, especially the foot, were sick, and many died, seldom less than seven, eight or nine in a day in the town of Autree, and amongst the rest Colonel Pickering died and some other officers. The Royal party had notice of this consumption of Fairfax's army," and took heart to make a new effort. The type of sickness is unknown; but it was such as to cause the removal of the head-quarters on December 2 to Tiverton, for better air.

[1] *Notes and Queries*, 6th ser., III. 477. [2] Rushworth.

The army lay there until January 8, and came to Totness, for the siege of Dartmouth, on the 11th. Thus Totness had not only been occupied by an army some months before the plague, but by an army which had lately had a fatal form of sickness in it. The troops march away, and the historical interest goes with them; what they may have left behind them concerns only the domestic history. Fifty-six years had passed since Totness had the plague before; and on that occasion the epidemic was equally disastrous.

Two other centres of plague in 1646–7 are casually mentioned, one at Reading[1], which affected "a great number of poor people," and the other at Carlisle[2]. Of the latter there are no particulars; but the circumstances of the town for several years were such as to make an outbreak of plague in 1646 credible.

Carlisle suffered much from the war for a series of years. In July, 1644, it was seized for the Royalists, and was besieged by Lesley in October, the siege lasting many months. It had a garrison of about 700, including some of the townsfolk armed. About the end of February, 1645, all the corn in the town was seized to be served out on short allowance; on June 5, "hempseed, dogs and rats were eaten." The surrender was on June 25, and the place was held by a Scots garrison until December, 1646. It was again seized for the Royalists in April, 1648, was recaptured by Cromwell in October, and held by a strong garrison of 800 foot and a regiment of horse, besides dragoons to keep the borders. All Cumberland was in such a state of destitution that the Parliament ordered a collection for its relief; numbers of the poor are said to have died in the highways, and 30,000 families were in want of bread[3].

Plague in Scotland during the Civil Wars.

Connecting with plagues in the north of England, there was a great prevalence of the infection in Scotland. After the storming of Newcastle by the Scots Covenanters in October, 1644, the plague appeared in Edinburgh, Kelso, Borrowstownness, Perth

[1] *Histor. MSS. Com.* XI. 7, p. 190. [2] *Ibid.* IX. 1, p. 201.
[3] *Hist. of Carlisle*, 1838.

and other places. On April 1, 1645, Kelso was burned down, the fire having originated in a house that was being "clengit" or disinfected after plague in it. At Edinburgh the plague-stricken were housed in huts in the King's park below Salisbury Crags. Collections were made for the relief of people in Leith impoverished by the plague. The epidemic in and around Perth is said to have given rise to the story of Bessie Bell and Mary Gray, who fled from the plague-tainted ground and built themselves a bower by a burn side[1]. At Glasgow the infection was severe in the end of 1646, and did not cease entirely until the autumn of 1648. There are numerous references to it in the letters of principal Baillie of Glasgow University, of which the following are the most important[2].

On September 5, 1645, he writes that the pest has laid Leith and Edinburgh desolate, and rages in many more places: never such a pest seen in Scotland (in his time, perhaps). About January, 1646, he writes of "the crushing of our nation by pestilence and Montrose's victories." At the end of that year, the plague was in Glasgow: on January 26, 1647, during winter cold, "all that may are fled out of it." On June 2, the plague had scattered the St Andrews' students, the principal of St Leonard's College was dead of it, and it was killing many in the north. The same summer, principal Baillie was shut up in the town of Kilwinning, cut off, with all the inhabitants, from communication with the outer world owing to a suspicion of plague in the place. Edinburgh and Leith, which had suffered earliest, were almost free in the autumn of 1647, but "Aberdeen, Brechin and other parts of the north are miserably wasted; the schools and colleges now in all Scotland, but Edinburgh, are scattered." Glasgow had its worst experience of plague in the summer and autumn of 1648, which were wet seasons: on August 23, "our condition for the time is sad; the plague is also in Edinburgh and Aberdeen... At this time I grieved for the state of Glasgow....My brother's son's house was infected; my brother's house enclosed many in danger; one night near a dozen died of the sickness....The long great rains for many

[1] Chambers, *Domestic Annals of Scotland.*

[2] Baillie's *Letters.* 3 vols. Edited by D. Laing for the Bannatyne Club.

weeks did prognosticate famine; but these three days past there is also a great change of weather; the Lord continue it." The infection which began at Glasgow in January, 1647, reached Aberdeen in April, having been carried, it was said, by a woman from Brechin. It was still raging at Aberdeen in September, and there were straggling cases as late as November of the following year (1648). The deaths from plague are put down at 1600, besides 140 in the adjacent fishing villages of Futtie and Torrie on either side of the Dee mouth. This enormous mortality ensued despite the usual rigorous measures—the removal of the infected to huts on the Links and Woolmanhill, a cordon of soldiers to shut them in, a gibbet for the disobedient, and "clengers" for the infected houses[1]. This disastrous epidemic of 1647–1648 is the last that is heard of plague in Scotland.

Plague in Chester &c. and in Ireland, 1647–1650.

The two remaining English plagues of those years were both in cities that had suffered much from plague before, and were in a constant state of turmoil during the war, namely Chester and Shrewsbury. Chester was held for the king, and surrendered to the Parliament on February 3, 1646, after a siege of twenty weeks, during the latter part of which there was famine within the walls. It was not until 1647 that plague broke out. From June 22 until April 20, 1648, the numbers that died of plague are stated in the MS. of Dr Cowper to have been 2099; all business was suspended, and cabins for the plague-stricken were built outside the town[2].

The Shrewsbury plague of 1650, like that of Chester, is described as having been dreadful in its effects upon the town. It broke out during the occupation by the Parliament's troops, on June 12, 1650, in a house in Frankwell, and continued until

[1] Kennedy, *Annals of Aberdeen*, I. 270 (expenses of the epidemic from the Council Register, vol. LIII. p. 130).

[2] Hemingway, Ormerod. *The Report of the Hist. MSS. Commission* (V. 339) notes that Dr Cowper's MS. contains details of 2,099 deaths, but reproduces none of them.

January, 1651. Only one parish, St Chad's, appears to have kept account of the plague-deaths: in that register from June 12 to January 16, there are entered 277 burials, whereof of the plague 250, the highest monthly mortality (76) being in August, 1650. Of these 250 deaths, 123 took place in the pest-houses. A letter of August 21 says that 153 died in two months, and that there were near 3000 people in the town dependent upon common charity[1]. On November 21, there were still 200 cases in the pest-houses, most of them being in the way to recover, as usually happened towards the end of an epidemic through the greater readiness of the buboes to suppurate.

From the small number of burials due to ordinary causes in the St Chad's register, it would appear that many citizens had fled. The severity of incidence upon certain houses appears from the fact that five servants in Mr Rowley's house died of it; and that 15 out of 21 burials in St Julian's parish came from four families[2]. These are incidents like those of the great plague of London in 1665, which is the next in time in the English annals after Shrewsbury's visitation in 1650.

The plague in Ireland in 1649–50 was connected, directly and indirectly, with the military operations under Ireton and Cromwell. The previous year, 1648, had been one of famine: at the attack on Kildare by the rebels in the spring, both the English garrison in the town and the attacking Irish were half-starved, and there was a great mortality on both sides, as well as a murrain of cattle. On May 4, corn in all the rebel quarters is said to be at the incredible price of £8 the quarter, both men and cattle dying in large numbers[3]. In 1649 the plague broke out in Kilkenny, obliging the supreme council of Confederate Catholics to remove to Ennis. Ireton, "thinking he ought not to meddle with what the Lord had so visibly taken into his hands, has declined taking Kilkenny into his own." But Cromwell besieged it on March 23, 1650, by which time the garrison of 200 horse and 1,000 foot had been reduced

[1] *Hist. MSS. Commiss.* v. 342.
[2] Owen and Blakeway.
[3] Rushworth, Pt. 4, vol. II., pp. 1100, 1109.

to 300 men through the ravages of the plague, the inhabitants having also suffered heavily[1].

The Royalist letters from the Hague speak of the plague in the summer of 1650 as disastrous in Ireland, particularly in Dublin[2]. On August $\frac{5}{15}$: "Lady Inchiquin came hither last night; those with her report that the plague will devour what the sword has not in Ireland." On September $\frac{2}{12}$: "All I hear out of Ireland is that the plague has made a horrid devastation there; 1100 in a week died in Dublin"—an improbable estimate[3]. The ranks of the rebels were so thinned by the sword and pestilence that "not above 200 suffered by the hands of the executioner," after trial at the high court of justice held in County Cork in 1651[4]. The epidemic appears to have ceased in the autumn of 1650, when the Council of State, in a despatch to the Lord Deputy, take notice of the goodness of God in stopping the plague[5].

Fever in England, 1651–2.

Between those plagues of the years 1644–1650 and the final re-appearance of the infection on English soil from 1665 to 1666, the interval is occupied with a good deal of fever both in town and country. The sicknesses of those years are of interest as having been described by two competent physicians, Willis and Whitmore.

There were two principal periods of the epidemics, the years 1651–2 and 1657–9. In the former period the sickness appears to have been mostly in the north-west. Whitmore, who had seen practice in the Civil War, in Staffordshire and Shropshire, appears to have been in Chester in 1651, and was settled in

[1] *Annals of Ireland* by Clyn and Dowling, Dean Butler's notes pp. 64, 65 (ref. to Carte's *Life of the Duke of Ormonde*).

[2] *Cal. State Papers.*

[3] The weekly bills of mortality for Dublin, July 20—Aug. 2, 1662, showed only 14 baptisms and 20 burials in ten parishes; but these can hardly have been all the births and deaths in the city.

[4] Smith's *Cork*, vol. II. from Cox MSS.

[5] *Cal. S. P.* Sept. 21, 1650.

London in 1657. It is from him that our information mostly comes[1].

"It is well known," he says, "that this disease in the year 1651 [the same fever that he describes more fully for the years 1658 and 1659] first broke out by the seaside in Cheshire, Lancashire, and North Wales....In Cheshire in the year 1651 this disease seized most upon the country people who were laborious, the seeds being sooner dispersed in them through the agitation of the humours and spirits in their harvest labours, than on those who lead a more sedentary life; and that might be one reason why we were so free in the city of Chester, when within three or four miles of us round about, whole towns were infected with it, there being 80 and 100 sick at a time in small villages, as at Stanney, Dunham-on-the-hill, Norton and all there abouts by the water side it extremely raged."

Whitmore refers to something that he had written, "for my private use," on the subject of this fever as far back as 1642; he remarks also that it raged every autumn in some place or other of the kingdom, and mentions his own experience in Staffordshire and Shropshire during the late war. But it is the epidemic in Cheshire, Lancashire and North Wales, in 1651 that he specially describes, side by side with those of 1658 and 1659; and it is of interest to note his suggestion as to the origin of the fever on both shores of the Mersey. It was well known that the fever in 1651 first broke out by the seaside in Cheshire, Lancashire and North Wales:

"And if it were observed in Holland that on a misty day, that infectious disease the Sudor Anglicus came into Amsterdam in an afternoon, five hundred or more dying that night of it, as Lemnius reports, I know not why we may not as well suppose their opposite neighbour, Dublin, then visited for two years with the plague, should not have communicated the same to them though in a more remiss degree."

Here the suggestion is that the prevalence of plague on the opposite coast of Ireland had given rise to a minor and "more remiss" contagion along the coasts of North Wales, Cheshire and Lancashire. But the plague had been most severe in Chester itself before it broke out in Ireland, and had been severe in Shrewsbury at the same time as in Ireland.

[1] H. Whitmore, M.D. *Febris Anomala; or the New Disease that now rageth throughout England, with a brief description of the Disease which this Spring most infested London.* London, 1659 (4 November).

Whatever the theory, it is significant that the corner of England which was the worst and perhaps only seat of plague in 1648 and 1650, was the seat of a malignant fever in 1651, the former having been in the towns, and the latter in the country villages.

We get a glimpse of a heavy mortality among the country people the year after at Bootle, in Cumberland, just across the border from Lancashire[1]. On July 8, 1652, Thomas Wharton writes from Kirkdale to Edward Moore:

"There was a boy at widow Robinson's died upon Saturday in Whitsun week, and upon the Wednesday before he was sawying at the steward Worsley's house with his wrights. The boy and the steward's man slept together in Worsley's barn; towards night the boy was not well, and could work no longer. All this John Wiggan of Kirkdale did see. Next, John Birch died, and four of his children—all are dead but his wife. At John Robinson's, one child and his wife died last week, and upon Wednesday last two children more died; and it was thought by the constable of Bootle that he would be dead before this day at night. Upon Wednesday at night last, at James Pye's, there died two, his son and daughter; and a servant of Thomas Doubie's is dead; and it is this day broken forth in Bridge's, as we hear."

On what evidence this country epidemic is called "the plague" by the antiquary who prints the document does not appear. The fatality of the disease would suggest plague, rather than fever; but the fever itself would seem to have been more malignant at one place than another, and at one time than another, and there may have been at Bootle cases unmentioned which recovered. If it had been true bubo-plague, it is a solitary instance, so far as records go, in the fifteen years between the extinction of plague at Shrewsbury in 1650, and its revival in London and elsewhere in 1665. The epidemic disease that we ordinarily hear of in that interval is fever; and of the fever our best accounts, after Whitmore's reference to 1651, are of the epidemics in 1657, 1658 and 1659.

Fever and Influenza, 1657–9.

The account by Willis of three consecutive epidemics in the autumn of 1657, the spring of 1658, and the autumn of 1658,

[1] *Hist. MSS. Commission*, x. pt. 4, p. 106.

is of peculiar interest for the reason that it is the first systematic piece of epidemiology written in England, and that the middle epidemic of the three was one of influenza[1]. On reading the narrative of events by Willis, we can understand how it was that the physicians of that period were so impressed by the doctrine of an epidemic constitution of the season, and by its counterpart doctrine of a seasonal predisposition in the human constitution. That teaching was afterwards expounded in successive essays by Sydenham; but it was held generally in those times, and Willis found apt illustrations of it in the three epidemics one after the other in 1657–58. Let us follow his narrative, and add to it some particulars from Whitmore.

The spring and summer of 1657 were extremely dry and hot; but especially after the summer solstice the heats were so intense for many weeks following that, day and night, there was none that did not complain of the heat of the air, and were almost in a continual sweat and were not able to breathe freely. About the calends of July, the fever which was at first sporadic and particular, began to break forth in some places, perhaps two or three cases in the same city or village. The fever fits at this period occurred every other day, but there was no cold fit or rigor preceding, as in an ordinary ague, the heat being intense from the outset. Vomiting and bilious stools occurred plentifully to most, with sweat succeeding, not however an easy, uninterrupted and critical sweat. The remission of the fever fit was rarely complete in the intermediate day, weakness, languor, thirst and restlessness always remaining. In some the type improved after three or four of these quasi-tertian paroxysms; the later fits were ushered in with a rigor and a cold stage, so that the fever became an exact tertian intermittent. But in most the type became worse, which may have been due to errors of regimen and physicking. The fever became, indeed, a continued one, and might end in nervous symptoms—lethargy, delirium, cramps or convulsions.

In August it was spreading far and near, so that in every region or village round Oxford, many were sick of it; but it was much more frequent in the country cottages and in the

[1] Willis, *Diatribae duae*. Hagae, 1659.

smaller villages than in cities or towns. It was called "the new disease," as the war-typhus of 1643 had been called, and other epidemics both earlier and later.

Willis continues: It crept from house to house, infecting most of the same family, and especially those in familiar converse with the sick. "Yea old men, and men of ripe age, it ordinarily took away." It lasted many days in an individual, nay even months, attended with much evacuation and almost daily vomits and sweats. "Scarce one in a thousand died of it, which I never knew in an epidemical synochus." This singular malady, which differed from ague not only in its want of clear intervals between the fits of fever, but also in being propagated by contagion, raged throughout all England in the autumn of 1657. Only in some few limited localities, and in these only in some cases, was it accompanied by true dysentery. Willis is not satisfied with the facile explanation of an infection of the air, "the little bodies of which infections, being admitted within, did ferment with the blood and humours." There must have been something equally general in the human body, a predisposition to be so acted upon; and of that proneness to fever he finds the cause in the intemperance of the year, namely the great heat of the summer and autumn.

But the most remarkable illustration of these doctrines was the epidemic of the following spring, which was a pure and unmistakeable epidemic of influenza-cold. After the very hot summer and autumn, there was a long winter of intense frost. From the ides of December to the vernal equinox the earth was covered with snow, the wind blowing steadily from the north. The state of health through the winter was fairly good. The north wind continued until June. "About the middle of April, suddenly a distemper arose as if sent by some blast of the stars, which laid hold of very many together; and in some towns in the space of a week above a thousand fell sick together." They had a troublesome cough, great spitting, and catarrh "falling down on the palate, throat, and nostrils." The illness approached with fever, thirst, want of appetite, weariness, grievous pains in the head, back, loins and limbs, and heat in the praecordia. Some were very ill in bed, with hoarseness

and almost continual coughing; others had bleeding at the nose, bloody spittle or bloody flux. Not a few old and infirm died, but the more strong, and almost all the healthy constitutions recovered. Those that died "wasted leisurely," like persons sick of a hectic fever. About the third part of mankind was distempered in a month. Willis's explanation of it is that the constant north wind checked the natural action of the blood in spring. The spring blood is more lively, like the juices of vegetables. The catarrhal fever was a disorder of the spring blood, like new wine close shut up in bottles.

This outbreak about the middle of April is evidently described for Oxford and the country around. Willis then describes his third epidemic, that of the summer and autumn of 1658, which was the same type of fever as in the summer and autumn of 1657. The vernal fever of 1658 did not last longer than six weeks. The wind continued still north, until the summer solstice; a little before the beginning of July there was a most fierce heat for a few days, and when the dog-days were begun, the air grew most cruelly hot, so that one could scarce endure it in the open. The new fever arose mostly about the end of August, and began to spread through whole regions about us (at Oxford), and chiefly, like that of 1657, in country houses and villages; but in the meantime few of the inhabitants of the greater towns and cities fell sick. The symptoms were much the same as in the previous autumn. The fever was continual in some; in others it was of an intermitting type at first; but very many were ill "in their brain and nervous stock," with cruel headache, noises in the ears, dullness of hearing, stupor, vertigo, waking, and delirium. In some, on the first or second day, "little broad and red spots like to the measles have leisurely broken forth in the whole body, which being shortly vanished, the fever and headache became worse." The patients lay for a few days as if dying, without speaking or knowing their friends, after which came lethargy and delirium. The young men mostly recovered, the old men died. In the fits of old men, the heat was not very sharp, but there were restlessness, tossing about, idle and random talking, with dryness of the mouth, surfiness of the tongue, and viscous sordes. Usually the

pulse was strong and equal; a weak, unequal and intermittent pulse, with contractures of the tendons and convulsive motions in the wrists, was an omen of death. Those who died passed away in a stupor, without consciousness to dispose of their goods; the recovery of others was long and doubtful. One notable thing in this fever was the exanthem, which reminds one more of the rash of sweating sickness or dengue (break-bone fever), than of the spots of typhus.

Willis ends his book on fevers with that account of the autumnal epidemic of 1658, "taken the 13th of September," his work having been published at the Hague in 1659. Whitmore, whose short essay is dated from London, November, 1659, begins with the autumnal epidemic of 1658, which is the last of Willis's three; and, strangely enough, he also has a vernal epidemic of influenza to describe—an epidemic clearly belonging to the spring of 1659. Unless there be some error in Whitmore's dates, it is impossible to avoid the conclusion that the second autumnal fever, that of 1658, was followed by a spring influenza, just as the first, of 1657, had been.

Whitmore's account of the autumnal fever of 1658 agrees in the main with that given by Willis. He defines it as "a putrid continued and malignant fever containing in it the seeds of contagion." It raged in the last autumn through all England, "and now begins again," (his preface being dated November, 1659), seizing on all sorts of people of different nature, which shows that it is epidemic. The part affected is chiefly the heart, and therefore some call it *cordis morbus*.

"In this, as in the plague at the first catching of it, some seem to be very pleasant, so far are they from perceiving themselves to be amiss, when indeed death itself hath set his foot within the threshold of their earthly houses." There were pains in the head, inclination to vomit, sudden fainting of spirits, and weakness without any manifest cause, the pulse feeble and sometimes intermittent, so as very lusty and strong men in Cheshire (in the year 1651 where this disease then raged) in a very short space so lost their strength that they were not able to stand or turn themselves in their beds. Some also are taken with bleeding, purging, and sweating, and many have the spots. But for the most part it appears in the livery of some other kind of ague. It begins to show its malignity after the 5th, 7th, or 9th day, with loss of appetite, thirst, and a dry black tongue.

Letters of 1658 from London bear out the prevalence of autumnal sickness. On August 3, one writes that the weather is hot and dry, the town extremely empty, and the flux beginning. On January 4, 1659, there is much sickness, especially fevers, agues and the smallpox.

A good deal of the interest of Whitmore's essay lies in his arguments against blood letting in this fever; but that is part of a history which will have to be dealt with as a whole at a later stage.

Whitmore then proceeds to the vernal epidemic of 1659, just as Willis had done to that of 1658. His words are (4 Nov. 1659):

"Having given an account of the nature and cure of this disease which now rageth throughout England, I shall briefly describe that which this spring universally infested London; and show how it agreed and how it differed from that disease which last fall invaded the whole nation." He then describes the typical influenza, just as Willis had done under a date a year earlier—pains in the limbs of some, coughs, and aguish distempers in others; "so that in a week or a fortnight's time, when it had fermented and caused a putrefaction of humours, it quickly tended to a height, and struck many thousands in London down, scarce leaving a family where any store were, without some being ill of this distemper, suddenly sweeping very many away, being the same, in the judgment of no mean physician, with that in autumn last, though in a new skin." Whitmore then gives a reason "why this should hold them all with coughs, which it did not in the fall."

Assuming an affinity to the autumnal epidemic of 1658, he proceeds to state the circumstance of a reappearance in the spring of 1659: "Upon this hush it lay all the winter, until the Easter week, and then in two or three warm days broke loose, having had no warm weather all before, but a rainy and black week, the sun not appearing for five or six days together just before the holiday; when on a sudden that warm weather breaking forth, the citizens in their summer pomp, being thinner clothed many of them than before (like bees on a glorious day) swarmed abroad, and the pores etc."

Both Willis and Whitmore incline to the view that the catarrhal fever of the spring was akin to the strange fever of the autumn, the differentia of each being appropriate to the season. Willis, however, keeps the two types more apart than Whitmore. The latter speaks of both fevers as "this Protean-like dis-

temper," whose various shapes "render it such a hocus pocus to the amazed and perplexed people, they being held after most strange and diverse ways with it." It is "so prodigious in its alterations that it seems to outvie even Proteus himself." Thus the strangest part of these narratives is not the catarrhal influenza, which has so often reappeared as to be familiar, but the prevalence of anomalous fevers, in some respects like intermittents without the clear interval between the fits, but in respect of contagion, spots, pains and other symptoms, like typhus—a volatile typhus of the country and of the towns. Although this epidemiological phenomenon be a strange one, there is no reason to question the correctness of Willis's observations, corroborated as they are by those of Whitmore. But there are, indeed, many more experiences of the like kind in the years to follow, which fall without the limits of the present volume. One only of these later observers need be mentioned here. The third of the famous trio with Sydenham and Willis was Morton. He had a long experience in London of fever and smallpox, which he made the subject of a book in 1692–4[1]. His history goes as far back as 1658—"*historia febris συνεχὴς ab anno* 1658 *ad annum* 1691." Of the year 1658 he says the fever was everywhere through England and refers to Willis; the only facts of his own being that Oliver Cromwell and his (Morton's) father were carried off by it in September of that year, that he had it himself (aged 20) and was three months in recovering, and that the whole household (in Suffolk) were infected. Cromwell's attack came upon him at Hampton Court on August 21; but it was not the first sickness of the kind that he had suffered. He was only fifty-nine, but worn out with many cares, and at that time distressed by the death of his favourite daughter, Lady Claypole, under his roof on August 6, from some painful internal female trouble. The Lord Protector's fever was called a "bastard tertian," which might have been a name for the fever described by Willis. He was removed on the 24th August to Whitehall, where the air was thought to be more wholesome; and died between three and four in the afternoon of September 3, the

[1] *Pyretologia*. 2 vols. London, 1692–4. Appendix to 1st volume, p. 415.

anniversary at once of "Dunbar field and Worcester's laureat wreath."

This prevalence of fevers, Protean in their varying types, all over England in 1657–59 corresponds to the fever period of 1623–24. In each case the fever was a minor plague, and in each case it was followed by a revival of the plague proper, which had been dormant all over the country for a dozen or fifteen years. The principal difference is that the fever-period of 1623–24 was followed by the plague in 1625, whereas the fever-period of 1657–59 was followed by several years not free from fever and then by the plague in 1665. It is clear that the fevers of 1657–59 made a great impression all over England, and were afterwards popularly spoken of as a warning of the Great Plague itself. In the parish register of Aldenham, Hertfordshire, there is inserted a poem on the Great Plague of 1665, which has the following verses[1]:

> "Seven years since a little plague God sent,
> He shook his rod to move us to repent.
> Not long before that time a dearth of corn
> Was sent to us to see if we would turn."

In Short's abstracts of parish registers, the years preceding 1665 stand out as sickly in country districts, according to the following figures:

	No. of registers examined	No. with sickness	Baptisms in same	Burials in same
1657	98	36	991	1305
1658	96	33	704	1159
1659	101	29	553	825
1660	107	17	342	489
1661	182 (?)	25	448	685
1662	105	20	376	504
1663	119	15	325	443
1664	118	12	328	364
1665	117	14	229	446

Periods as unhealthy as 1657–59 do not occur again until 1667–71, and 1679–84.

Willis says, of the autumnal epidemic of 1658: "But in the meantime few of the inhabitants of the greater towns and cities

[1] Sent to *Notes and Queries*, 1st ser. XII. 281, by Mr H. Hucks Gibbs.

fell sick." That is confirmed for London, in a letter of October 26, 1658: "A world of sickness in all countries round about London. London is now held the wholesomest place;" but on January 4, 1659: "There is much sickness in the town, especially feavers, agues, and smallpox[1]." In Short's tables, the registers of market towns bear the same traces of much sickness in 1657 and 1658 as those of country parishes.

A high mortality from fever and spotted fever continued in London every year from 1658 to the year of the great plague. The largest number of deaths from fever was in the year of the plague itself, when the bills of mortality returned them as 5257 (without much certainty, however, owing to the confusion of the plague). The next highest figures had been in 1661, when the fever deaths were 3490. We get a glimpse of that epidemic from Pepys; on August 16, 1661, he writes: "But it is such a sickly time both in the city and country everywhere (of a sort of fever) that never was heard of almost, unless it was in plague-time. Among others, the famous Tom Fuller is dead of it, and Dr Nicholls [Nicholas], dean of St Paul's, and my Lord General Monk is very dangerously ill." On August 31 he enters in his diary: "The season very sickly everywhere of strange and fatal fevers." The same diarist, on October 20, 1663, has an entry that the queen is ill of a spotted fever and that "she is as full of spots as a leopard;" on the 24th the queen was in a good way to recovery.

It is at this period that Sydenham's famous observations of the seasons and the public health in London begin. The autumnal intermittents, he says, which had been prevalent some years before, came back in 1661 with new strength, about the beginning of July, being mostly tertians of a bad type: they increased so much in August as to sweep away families almost entirely, but declined with the winter cold coming on. He then draws the distinction between them and ordinary tertians. In the same years, 1661–2–3–4, a continued fever is described at great length, and then he comes to the "pestilential fever" and the plague itself of 1665 and 1666[2]. Taking from Sydenham

[1] *Hist. MSS. Commiss.* v. 146 (Sutherland letters).

[2] Greenhill's edition (Sydenham Society, 1844), pp. 37, 93, 95–98.

the single fact, for the present, that an unusual amount of pestilential fever led up to the plague of 1665 (which he did not stay in London to witness), we shall proceed in the next chapter but one to that crowning epidemic of the present section of our history. Something more remains to be said of the fevers of 1661 (specially described by Willis as a fever of the brain and nervous stock, but called "the new disease" in its turn); but as it is the first of Sydenham's "epidemic constitutions," and as these are recorded continuously to 1685, when there was another "new fever," it will be convenient to end the detailed history of fevers for the present with the remarkable epidemics of 1657–59.

CHAPTER XI.

SICKNESSES OF VOYAGES AND COLONIES.

(Sea Scurvy, Flux, Fever, and Yellow Fever.)

THE sicknesses of the first voyages and foreign settlements come into the history of national maladies, both as concerning Britain on the sea and beyond sea, and as showing forth the disease-producing conditions of those early times. In the latter respect there is more to be learned from voyages and colonial experience than the records of domestic life at home are likely to inform us of otherwise than vaguely. The Englishman of the time carried his habits with him to sea and to foreign parts, where the circumstances were more trying and the consequences more obvious.

This history divides itself at once into several branches. There are the disease-incidents of ocean voyages, irregular at first but becoming somewhat uniform after the East India Company's start in 1601, chief among them being scurvy. There are next the early discouragements from sickness, both on the voyage and after landing, in the planting of colonies in Virginia, New England and the West Indies, among which the troubles of Jamaica were on a sufficiently great scale to deserve minute study. Lastly, among the larger sections of this chapter, we have to notice the beginnings and circumstances of the terrible and long-enduring scourge of West Indian colonies—yellow fever. While we are mainly, in this record of the sicknesses of voyages and of new colonies, concerned

with British enterprise, we shall have occasion to glance at the similar experiences of other nations.

The first accounts of Sea Scurvy.

The malady that figures most in the narratives of the long ocean voyages which began with the modern period is scurvy. In the very first of the great voyages, that of Vasco de Gama to the Indies by the Cape of Good Hope in 1498, scurvy appeared when the ships were on the West African coast, fifty-five deaths occurring within a short period. Of all the known subsequent occurrences of the kind, there are accounts more or less full in the collections of Hakluyt and Purchas, from which the facts in the sequel have been taken.

In the voyage of Ferdinand Magellan to the Pacific, scurvy is mentioned first at a late stage; in the year 1520 the ships had passed the straits called by his name and had been three months and twelve days sailing westwards from the last land; their provisions had run short, and, "by reason of this famine and unclean feeding, some of their gums grew so over their teeth that they died miserably for hunger." Nineteen men, as well as a giant from Patagonia and an Indian from Brazil, were dead, and some twenty-five or thirty others were sick, "so that there was in a manner none without some disease[1]."

There were no voyages of the same length by English ships until many years after: and then we find the same troubles in them from scurvy and other sickness. While the Portuguese and Spaniards were navigating in tropical waters, the English and French were sending most of their expeditions to the North. The French attempted to found a colony on the shores of the Gulf of St Lawrence, while the English sought to establish a trade with Muscovy by way of the White Sea, and to open a nearer route to the far East by way of the polar regions. The voyages in all these enterprises were short, the ships for the most part returning after an absence of four or five months, and without any notable experience of sickness: it was only

[1] Purchas, *His Pilgrimes*. 4 vols., folio. London, 1625, vol. I. Book II. p. 36.

when the French wintered in Canada that scurvy broke out. Thus the English voyages for the Muscovy Company have little or no interest for our subject; while the three voyages of Frobisher in search of the North-West passage in 1576, 1577 and 1578, and the three of Davis in 1585, 1586, and 1587 (in which last he got to 73° N.) are as nearly as possible free from records of sickness.

Jacques Cartier's second expedition to the St Lawrence in 1535 had a disastrous experience of scurvy. In his first voyage in 1534, with two ships of sixty tons each and each carrying sixty-one men, he appears to have had no sickness, having left St Malo on April 20, traded with the Indians on the Gulf of St Lawrence, and returned on September 5 of the same year. The expedition of the following year, with three ships, wintered on the coast, amidst heavy ice, and about mid-winter began to suffer from scurvy[1]. The crews appear to have had no lack of stores, both meat and drink, and the outbreak of scurvy, described as an unknown disease, was so surprising that it was traced to infection from the Indians, who are said to have admitted the deaths of some fifty of their number from "pestilence."

"The said unknown sickness began to spread itself amongst us after the strangest sort that ever was either heard of or seen, insomuch as some did lose all their strength, and could not stand on their feet; then did their legs swell, their sinewes shrink as black as any coal. Others also had their skins spotted with spots of blood of a purple colour; then did it ascend to their ankles, knees, thighs, shoulders, arms, and neck; their mouth became stinking, their gums so rotten that all the flesh did fall off even to the roots of the teeth, which did also almost all fall out. With such infection did this sickness spread itself in our three ships that about the middle of February, of a hundred and ten persons that we were, there were not ten whole; so that one could not help the other...There were already 8 dead and more than 50 sick, and, as we thought, past all recovery." The body of one dead, aged 22, was opened to see what the disease was; he was found to have his heart white, but rotten, and more than a quart of red water about it[2]; his liver was indifferent fair; but his lungs black and mortified...his milt toward

[1] Hakluyt, *The Principal Navigations*, &c. 3 vols. London, 1599, III. 225–6.

[2] Pericarditis scorbutica—a condition which has been observed mostly in Russia in recent times. The whiteness of the heart would have been due to the fibrinous layer of lymph on its surface, from the pericarditis.

the back was somewhat perished, rough as if it had been rubbed against a stone.

"From the midst of November to the midst of March there died 25 of our best and chiefest men, and all the rest sick except three or four; then it pleased God to cast his pitiful eye upon us, and sent us the knowledge of remedie of our healths, and recovery....The Captain, walking upon the ice, asken of Domagaia [an Indian] how he had done to heal himself; he answered that he had taken the juice and sap of the leaves of a certain tree, and therewith had healed himself! for it was a singular remedy against that disease." The Indian's advice was "to take the bark and leaves and boil them together and to drink of the said decoction every other day, and to put the dregs of it upon the legs that is sick."...

"It is thought to be the sassafras tree. After this medicine was found and proved to be true there was such strife about it, who should be first to take of it, that they were ready to kill one another, so that a tree as big as any oak in France was spoiled and lopped bare, and occupied all in five or six days, and it wrought so well that if all the physicians of Montpelier and Lovaine had been there with all the drugs of Alexandria, they would not have done so much in one year as that tree did in six days, for it did so prevail that as many as used of it, by the grace of God recovered their health."

In 1542, while Cartier was still trading on his own account to the St Lawrence from Brittany, a more ambitious project, under a Crown patent, issued from La Rochelle[1]. With De la Roche, count of Roberval, as governor, a number of adventurous nobles and gentry, with men, women and children to the number of two hundred in all, sailed in three ships, and established themselves in Lower Canada with all the formalities of occupation. Two of the three ships were sent home in September, the colonists proper being left to taste the rigours of a Canadian winter: "In the end many of our people fell sick of a certain disease in their legges, reynes and stomacke, so that they seemed to bee deprived of all their lymmes: and there died about fiftie."

The first English records of scurvy at sea are in connexion with the early voyages to Guinea for gold-dust[2]. Mr John Lok sailed on the second voyage to Guinea, on October 11, 1554, his ships being the 'Trinitie,' 140 tons, the 'Bartholomew,' 90 tons, and the 'John Evangelist,' 140 tons. After trading some months on the African coast the ships sailed for home:

[1] Hakluyt, III. 241.

[2] Hakluyt, II. Part II., pp. 22, 36, 48.

"There died of our men at this last voyage about twenty and four, whereof many died at their return into the clime of the cold regions, as between the islands of Azores and England." The disease is not named; but it is probable from what follows that it was scurvy.

The next voyage to Guinea was Towrson's first, in October 1555, from Newport, Isle of Wight, in the 'Hart' and the 'Hind;' the death of only one man is mentioned; he died "in his sleep" on March 29; by the 7th May, the provisions were so reduced that the ships put in on the coast of Ireland to purchase milk and two sheep from the wild kernes, paying in gold-dust.

In Towrson's second voyage there is no word of sickness; but in his third voyage in 1577, it is a prominent topic of the narrative. The vessels 'Minion,' 'Christopher' and 'Tiger' left Plymouth on January 30, 1577. On the 8th of May, "all our cloth in the 'Minion' being sold, I called the company together to know whether they would tarry the sale of the cloth taken in the prize at this place or no: they answered that in respect of the death of some of their men, and the present sickness of 20 more, they would not tarry, but repair to the other ships, of whom they had heard nothing since April 27." Having at length bartered for gold until the natives would barter no longer, the three ships bore up for home. On July 24 the master of the 'Tiger' came aboard the 'Minion' and reported that "his men were so weak and the ship so leak that he was not able to keep her above the water." A muster held of all the three crews the same day showed that there were not above 30 sound men in them. On September 3, there being only six men in the 'Tiger' who could work, the gold and stores were taken out of her, and she was abandoned. On October 6, when off the coast of Portugal, the 'Christopher' reported herself so weak that she was not able to keep the sea. The 'Minion' promised to attend her into Vigo; but a fair wind springing up, she signalled that she was off for home, whereupon the 'Christopher' followed. On October 16, a great south-westerly storm arose; the men in the 'Minion' were not able, from weakness, to handle the sails, which were blown away: however, they made

shift to reach the Isle of Wight on October 20, nothing more being said of the 'Christopher.'

The English voyages to Guinea for gold-dust were shortly followed by the three expeditions of John Hawkins in 1562, 1564 and 1567 to the West coast of Africa for negro slaves to be sold to the Spaniards in Hispaniola and Cuba and on the Spanish Main[1]. Only a brief summary remains of the first voyage, in which nothing is said of sickness; in the second, the negroes, at least, appear to have suffered on the somewhat long passage across the tropical belt, especially from want of water; and the third was so calamitous in various ways that Hawkins himself wrote of it: "If all the miseries and troublesome affairs of this sorrowful voyage should be perfectly and thoroughly written, there should need a painful man with his pen, and as great a time as he had that wrote the lives and deaths of the martyrs." Little or nothing is said of one class of martyrs in the business —the negroes, of whom the ships carried four to five hundred. English lives were lost in the kidnapping raids, from poisoned arrows, it was thought, the wounded dying "in strange sort with their mouths shut some ten days before they died, and after their wounds were whole." It was on the return from the Gulf of Mexico, more than a year out from England, that the sickness on board was worst. They cleared the Bahamas channel on November 16, 1568, after which, "growing near to the cold country, our men being oppressed with famine, died continually, and they that were left grew into such weakness that we were scarcely able to manage our ship" (the 'Jesus' of Lubeck, 700 tons). They put in at Ponte Vedra, near Vigo, on December 31, but the fresh provisions that they got turned to their hurt: "our men with excess of fresh meat grew into miserable diseases and died a great part of them." Twelve fresh hands shipped at Vigo enabled the vessels to reach the nearest English haven at Mount's Bay in Cornwall.

Meanwhile we obtain some glimpses of seafaring among the Portuguese, who had now in the middle of the 16th century a regular trade to the Indies, established by Vasco de Gama's route round the Cape of Good Hope. Perhaps the most famous

[1] Hakluyt, III. 501.

of these records is that of the voyage of St Francis Xavier from Lisbon to Goa in the spring of 1540. The expedition with which he took passage carried, it is said, a regiment of a thousand men to reinforce the garrison of Goa; during the voyage the Jesuit apostle "rendered to the diseased services too revolting to be described, and lived among the dying and the profligate, the unwearied minister of consolation and of peace[1]." After five months the ships arrived at Mozambique, by which time Xavier and many more were suffering from fever. Goa was not reached until thirteen months out from the Tagus. A more familiar narrative of the same voyage of the Portuguese ships a generation later is given by an English youth, Thomas Stevens, in a letter written home to his father, a citizen of London, shortly after arriving at Goa. Both in its generalities and in its particulars this excellent letter will serve to measure the prevalence of scurvy, flux, and fever in the earlier period of the East Indian trade by the Cape[2].

The five ships left Lisbon on April 5, 1579, the solemnity being marked by the firing of ordnance and the braying of trumpets. In the ships, "besides shipmen and soldiers, there were a great number of children, which in the seas bear out better than men; and no marvel, when that many women also pass very well." After a passage along the Guinea coast, made tedious by calms and head winds, they rounded the Cape of Good Hope on July 29. From that point in the voyage the Portugal ships were wont to follow one or other of two routes according to the lateness of the season—either the route by the Mozambique Channel, in which case they were able to get fruits and fresh provisions, or the route along more southern parallels for a time, and passing to the east of Madagascar[3]. In the latter case, "by reason of the long navigation and want of food and water, they fall into sundry diseases, their gums wax great and swell, and they are fain to cut

[1] Sir James Stephen's *Essays in Ecclesiastical Biography*, pop. ed. p. 125.

[2] Hakluyt, II. pt. 2, p. 99.

[3] The famous figure in *Paradise Lost* (IV. 159) is taken from the route to India passing within Madagascar—a poetic colouring of dreary and painful realities:—

> As when to them who sail
> Beyond the Cape of Hope, and now are past
> Mozambik, off at sea north-east winds blow
> Sabean odours from the spicy shore
> Of Araby the blest; with such delay
> Well pleas'd they slack their course, and many a league
> Cheer'd with the grateful smell old Ocean smiles:

them away, their legs swell, and all the body becometh sore and so benumbed that they cannot stir hand nor foot, and so they die for weakness. Others fall into fluxes and agues, and so die thereby.

"And this way it was our chance to make; and though we had more than one hundred and fifty sick, there died not past seven-and-twenty, which loss they esteemed not much in respect of other times."

The ships went greatly out of their course, having sighted the island of Socotra at the entrance to the Gulf of Aden, and did not arrive at Goa until October 24, 202 days from Lisbon without calling anywhere.

The first of the long English voyages beyond the Line was Sir Francis Drake's famous circumnavigation from November 15, 1577, to September 26, 1580[1]. Drake must have lost many of his men in those three years, but there is nothing in the narrative to show that they perished of disease. The expedition was by way of the Straits of Magellan, and was mainly given up to plundering the Spaniards on the coasts of Chili and Peru. Drake set out for home loaded with treasure by way of the Philippines and the Cape of Good Hope. It is not until the narrative brings us to a small island between Ternate and Celebes that we hear of sickness; they graved the ship there and remained twenty-six days, during which the "sickly, weak and decayed" recovered their strength, a large species of crayfish found on the island being "very good and restoring meat, whereof we had experience." But even Drake, with all his systematic care and resource, was destined in after years to have a share of the common sickly experience at sea, and to find disease a more potent enemy than the Spaniard.

Remarkable Epidemic in Drake's Fleet 1585–6.

Drake's next great expedition after his circumnavigation was in 1585, with six Queen's ships and some nineteen others, carrying 2,300 men. A large number of private adventurers had a money interest in the enterprise, which had for its object to plunder Spanish towns in the West Indies and the Spanish Main and to capture the treasure at the isthmus of Panama on

[1] *The World Encompassed* &c., Hakluyt Society, ed. Vaux, p. 149, and Hakluyt, III. 740.

its way to Spain. The fleet experienced one of the most remarkable epidemics in the whole history of sickness[1].

Having left Plymouth on September 14, 1585, they arrived at the island of St Jago, in the Cape de Verde group, on November 16. More than a thousand men were landed, and were marched up the steep and broken ground to a hill overlooking the capital, which stood in a narrow valley, with high cliffs on the east and west and the Atlantic open before it at some distance on the south. The place was surrounded by a wall, and defended by fifty pieces of brass ordnance; but no resistance was offered, and the English marched in to find the inhabitants fled farther inland. On the 17th November, the town was quartered out for the lodging of the whole army, which remained there for ten days or a fortnight (there are inconsistent dates), taking such spoils as the place yielded (wine, oil, meal and "trash" of the Portuguese trade to the Indies). After a week, when no one had come to ransom the town, Drake set out with 600 men to the village or town of St Domingo, twelve miles inland, with the hope of finding the governor and the bishop; but, finding no one, he marched his men back again the same evening. On November 26 the whole force was re-embarked, all the houses in the capital as well as in the country round were set fire to, the port of Playa, a few miles to the westward, was also burned, and on the same night the ships weighed anchor from the latter, and stood away to the south-west. They had filled their water-casks from a pool, near the sea-shore, formed by the small stream which runs through the capital and descends the southern declivity. Nothing is said of sickness during the occupation of St Jago; there seems to have been some lax discipline, (owing to the mixed character of the expedition), which Drake quickly remedied.

The ships were only eighteen days in crossing the Atlantic to Dominica, a distance of some forty meridians. In the midst of that quick sailing along the edge of the tropical belt of ocean, with the steady north-east trade wind behind them, the season the beginning of December and the climate the most delightful and most refreshing on the globe, the ships were visited suddenly with the fury of a deadly pestilential fever, of which the following is the account by a captain of the land-forces on board:

"We were not many days at sea but there began among our people such mortality as in a few days there were dead two or three hundred men. And

[1] *A summarie and true discourse of Sir Francis Drake's West Indian voyage begun in the year* 1585. Published by M. Thomas Cates. Shortened in Hakluyt, III. 542. The earlier part of the narrative is by Captain Bigges, and, after his death in the West Indies, by his lieutenant, Croftes.

until some seven or eight days after our coming from St Jago there had not died any one man of sickness in all the fleet. The sickness showed not his infection wherewith so many were stroken until we were departed thence; and then seized our people with extreme hot burning and continual agues whereof very few escaped with life, and yet those for the most part not without great alteration and decay of their wits and strength for a long time after. In some that died were plainly showed the small spots which are often found upon those that be infected with the plague."

From Dominica the ships sailed to St Christopher, on which island Drake disembarked his whole force, and cleaned and aired his ships, according to an excellent practice which he had followed also in his great circumnavigation. Some days of Christmas having been thus spent ashore, "to refresh our sick people," the voyage was resumed to Hispaniola. Deaths continued to occur, from the same disease as at first, both among officers and men, and so continued for many weeks. However, they were able to land some 1000 or 1200 men on Hispaniola, and to carry the city of San Domingo by assault. The fleet then sailed southwards along the coast of the mainland to Cartagena, which was captured in turn, and in like manner held to ransom.

It is at this part of the narrative that we next hear of the infection in the fleet:

"We stayed here six weeks [from middle of January to end of February, 1586], and the sickness with mortality, before spoken of, still continued among us, though not with the same fury as at the first. And such as were touched with the said sickness, escaping death, very few or almost none could recover their strength; yea, many of them were much decayed in their memory, insomuch that it was grown an ordinary judgment, when one was heard to speak foolishly, to say he had been sick of the *calentura*, which is the Spanish name of that burning ague; for, as I told you before, it is a very burning and pestilent ague."

Then follows the Spanish theory of the *calentura*, which may or may not be rightly applied to the deadly epidemic that broke out suddenly in the English ships in mid ocean:

"The original cause thereof is imputed to the evening or first night air, which they term *la serena*, wherein they say, and hold very firm opinion, that whoso is then abroad in the open air shall certainly be infected to the death, not being of the Indian or natural race of those country people. By

holding their watch our men were thus subjected to the infectious air, which at St Jago was most dangerous and deadly of all other places. With the inconvenience of continual mortality, we were forced to give over our intended enterprize, etc."

The land-captains having been consulted by Drake, on February 27, 1586, advised that the expedition should go home from Cartagena, instead of attempting to capture the treasure at Panama. In their memorandum they wrote: "And being further advised of the slenderness of our strength, whereunto we be now reduced, as well in respect of the small number of able bodies, as also not a little in regard of the slack disposition of the greater part of those which remain, very many of the better minds and men being either consumed by death, or weakened by sickness and hurts, etc." The voyage to England was accordingly begun; St Augustine in Florida was captured by the way, and the struggling colony in Virginia, the first sent out by Raleigh, was taken up and brought back, and Portsmouth reached on July 28. "We lost some 750 men in the voyage, above three parts of them only by sickness." The names are given of eight captains, four lieutenants, and seven masters, who had died; and there were some other officers dead unnamed. When the ransoms of San Domingo and Cartagena came to be divided, the venture must have been found as unprofitable to the shareholders as it had been disastrous to officers and men.

The Spanish name *calentura*, by which the fever in the fleet is described, was probably used generically for various kinds of fever in the tropics. But of this fever in particular, we have some details not without diagnostic value. It was doubtless contracted at St Jago in the Cape de Verde islands; it broke out suddenly in mid ocean after some seven or eight days sailing before the wind, in a delightful climate, which points to the regular incubation of an infective virus, received by hundreds of men when they were last ashore; the mortality was enormous; the symptoms were those of a burning fever; and in some cases there were small spots or petechiae like those often seen in the plague. It was clearly a febrile form of pestilential infection, and, as few recovered, it must be considered to have had a death-rate such as typhus has rarely had, and such as yellow

fever has commonly had. Nothing is said of the black vomit, the haemorrhages, and the saffron colour of skin and eyes, which are distinctive of yellow fever[1]. On the other hand there is a remarkable after-effect mentioned in both the passages quoted, the loss of memory, impairment of wits, and appearance of foolishness, which made "the calenture" a bye-word in the fleet. I shall not venture to say what the infection was; but it seems tolerably certain that it was contracted by the English during their occupation of the capital town of St Jago. More recent visitors to the Cape de Verde islands have remarked upon their towns and villages as fever-traps, and have pointed to the source of the fever; it is not malaria, or the mere climatic influence, but a pestilential emanation from spots of soil long inhabited by mankind, both black and white, and so situated in cups of the hills as to retain and multiply the filth-ferment in them. According to all analogy, the emanations from such a soil would be felt most by strangers not inured to them, and most of all by men of another stock and from other latitudes[2].

[1] Mr Froude (*History*, XII. 150) must be pronounced somewhat happy in his bold guess of "yellow fever." At the same time the enthymeme by which he had reached his conclusion is altogether wrong: first, in assuming that the infection "broke out" after the capture of Cartagena, ignoring the fact of its disastrous prevalence in mid-ocean two or three months before, shortly after leaving the Cape de Verde islands; and secondly in assuming that the yellow fever for which Cartagena and other harbours of the Spanish Main became notorious in later times had existed as an infection there in the 16th century.

[2] Sir Richard Hawkins, who commanded the galliot 'Duck' in Drake's expedition of 1585, thus refers to the Cape de Verde islands, on the occasion of touching there in his own expedition to the Pacific in 1593 (Purchas, IV. 1368):

These islands are "one of the most unhealthiest climates in the world. In two times that I have been in them, either cost us the one half of our people, with fevers and fluxes of sundry kinds, some shaking, some burning, some partaking of both; some possesst with frensie, others with slouth; and in one of them it cost me six months' sickness, with no small hazard of life." He then gives a reason for the great risk to health: the north-east breeze about four in the afternoon seldom faileth, "coming cold and fresh, and finding the pores of the body open and for the most part naked, penetrateth the very bones, and so causeth sudden distemperature, and sundry manners of sickness, as the subjects are divers whereupon they work. Departing out of the calmes of the Islands, and coming into the fresh breeze, it causeth the like; and I have seen within two days after that we have partaked of the fresh air, of two thousand men above an hundred and fifty have been crazed in their health." This seems to refer to the epidemic in Drake's fleet, as given in the text; but it is clearly an imperfect account of the facts, and in theory altogether improbable,

Sicknesses of Voyages, continued: Management of Scurvy.

The expedition to Virginia which returned in 1586 with Drake's ships homeward bound from the Spanish Main, was the first sent out by Raleigh with the intention of settling, an earlier voyage in 1584 having been made to explore the country. It is in connexion with Raleigh's second colony (and fourth expedition) in 1587 that we hear of disastrous sickness[1]. Having left 118 people to inhabit the country, the two larger ships sailed for home on August 27 of the same year. On board the "fly-boat," the provisions fell short, the water turned stinking, officers and men died, and the vessel was navigated with difficulty to the west coast of Ireland. When they reached Portsmouth, they found the admiral arrived there three weeks before them, but with an equally disastrous experience: "Ferdinando the master, with all his company were not only come home without any purchase, but also in such weakness by sickness of their chiefest men that they were scarce able to bring their ship into harbour, but were forced to let fall anchor without."

as a trade wind within the tropic cannot be credited with such effects, even if the forms of sickness were conceivably due at all to chill.

Darwin (*Naturalist's Voyage in the Beagle*, p. 366) says: "The island of St Jago, at the Cape de Verde, offers another strongly-marked instance of a country, which anyone would have expected to find most healthy, being very much the contrary. I have described the bare and open plains as supporting, during a few weeks after the rainy season, a thin vegetation, which directly withers away and dries up; at this period the air appears to become quite poisonous; both natives and foreigners often being affected with violent fevers. On the other hand, the Galapagos Archipelago, in the Pacific, with a similar soil, and periodically subject to the same process of vegetation, is perfectly healthy." But the Galapagos have been uninhabited, except in recent times by two or three hundred people banished from Ecuador. On the other hand the Cape de Verde islands are believed to have been at one time well wooded and not unfertile; and the Portuguese settlements in them, to say nothing of the native negro villages, had a fair population. It is not easy to understand the pernicious character of their fevers without assuming that spots of soil had become pestilential by human occupancy; but it is at the same time clear that a degree of befouling of the soil which would be innocuous in ordinary, would there engender deadly miasmata owing to the remarkable alternations of drought and wetness under a tropical sun.

[1] Hakluyt, III. 286.

The following year, 1588, was made memorable in the English annals of the sea by the defeat of the Spanish Armada. There was much sickness in both fleets. As regards the English ships, a writer who has had special access to original documents says[1]:

"We little think, when we peruse the melancholy tale of disease, starvation and shame, so needlessly undergone by the heroic champions of England's liberty against the invading might of Spain, from what obscure and insignificant causes the difficulties and hardships of the Island seamen may have chiefly arisen"—namely the peculation of officials, the mouldering rations, empty magazines, and the like. In the ships of the Spanish fleet the infection was like that of the plague itself; the main body of the expedition, fifty sail, reached Corunna, Santander and St Sebastian with such infection among the ten thousand men on board, that the inhabitants shut their houses against them

Two of the heroes of that fight, Drake and Hawkins, met their death by sickness off the Spanish Main in 1595–6. The expedition, consisting of 2500 men in six Queen's ships and twenty-one others, left Plymouth on August 28, 1595[2]. Only the deaths of officers are mentioned in the narrative, but of these there seem to have been a good many, when the ships were in the Caribbean Sea. Hawkins died off Porto Rico on November 12. On December 7, Mr Yorke, captain of the 'Hope,' died of sickness, on January 15, captain Plat died of sickness, and then Sir Francis Drake began to keep his cabin and to complain of a scouring or flux: he died on January 28, off Porto Bello. On the 27th died captain Jonas of the 'Delight,' captain Egerton, and James Wood, chief surgeon of the fleet, out of the 'Garland.' On the 28th died Abraham Kendall out of the 'Saker.' Several of the ships were sunk so that their men might go to the Queen's ships, which were short of hands. A muster on February 6 showed in the whole fleet "two thousand sick and whole," or five hundred fewer than had sailed. There was some loss of life in encounters with the enemy, but much more from disease.

Of the filibustering cruises or expeditions to the East by the South American route, there remain to be mentioned two

[1] Mr Hubert Hall, of the Record Office, in *Society in the Elizabethan Age*. London, 1886, p. 120.

[2] Hakluyt, III. 583.

by Thomas Cavendish, and one at some length by Richard Hawkins, before we come to the establishment of regular English trade to the East Indies by the Portuguese route round the Cape of Good Hope. Cavendish's first voyage[1] by the Straits of Magellan was from Plymouth, 25 July, 1586, with three ships (240 tons in all) carrying 125 men.

Touching on the west coast of Africa, they went ashore and took lemons from the trees. Off the coast of Brazil in November and December two men died "of the disease called scorbuto, which is an infection of the blood and the liver." Arrived at the Straits of Magellan they found twenty-three Spaniards living on shell-fish, "which were all that remained of four hundred which were left there [to found a colony] in these Straits of Magellan, three years before, all the rest being dead with famine." They were only too glad to hasten from this place, Port Famine, "for the noysome stench and vile savour wherewith it was infected through the contagon of the Spaniards' pined and dead carkeises." In one of Cavendish's own ships, on February 21, 1588, when among the East Indian islands, Captain Havers died of "a most severe and pestilent ague, which held him furiously some seven or eight days. Moreover presently after his death, myself [Pretty, the narrator] with divers others in the ship fell marvellously sick, and so continued in very great pain for the space of three weeks or a month, by reason of the extreme heat and intemperature of the climate."

One might guess that these were cases of ship-fever (or calenture); but in Cavendish's last voyage we meet with a strange sickness which will perhaps baffle all nosological conjecture. This voyage, like the first, was intended for the East Indies by way of the Straits of Magellan[2]. The three tall ships and two barks, having sailed from Plymouth on August 26, 1591, never got through the Straits; they were still within their recesses in April, 1592, many men having "died with cursed famine and miserable cold," and sick men having been put ashore into the woods in the snow. The narrative (by John Lane), then follows the fortunes of one of the ships, the 'Desire.' Landing at Port Desire, in Patagonia, they found scurvy-grass growing, which they ate with oil: "This herb did so purge the blood that it took away all kind of swellings, of which many [had] died, and restored us to perfect health of body, so that

[1] Hakluyt, III. 804, 820; and other details in the 1st ed. (1589) pp. 809, 810.

[2] Hakluyt, III. 842–52.

we were in as good case as when we came first out of England." There also they took on board 14,000 penguins, which they had dried on the rocks, mostly without salt; and sailed northwards on December 22. With only 27 men surviving out of 76, they left the coast of Brazil at Cape Frio (near Rio de Janeiro), and then began their more singular experience of disease.

"After we came near unto the sun, our dried penguins began to corrupt, and there bred in them a most loathsome and ugly worm of an inch long. This worm did mightily increase, and devour our victuals;" it devoured everything except iron,—clothes, boots, shirts, even the ship's timbers! "In this woeful case, after we had passed the equinoctial toward the North, our men began to fall sick of such a monstrous disease as I think the like was never heard of: for in their ankles it began to swell, from thence in two days it would be in their breasts, so that they could not draw their breath, and then fell into their cods, and their cods and yardes did swell most grievously and most dreadfully to behold, so that they could neither stand, lie, nor goe. Whereupon our men grew mad with grief. Our captain [John Davis] with extreme anguish of his soul was in such woeful case that he desired only a speedy end, and though he were scarce able to speak for sorrow, yet he persuaded them to patience.....For all this, divers grew raging mad, and some died in most loathsome and furious pain. It were incredible to write our misery as it was: there was no man in perfect health but the captain, and one boy....To be short, all our men died except sixteen [i.e., eleven died of the survivors after Cape Frio] of which there were but five able to move." Those five worked the ship into Berehaven (Bantry Bay) on June 11, 1593, and there ran her ashore.

The remarkable epidemic on board the 'Desire,' among men living upon dried penguin infested with worms, was probably not scurvy, or at least not all scurvy: the dropsy and dyspnœa suggest one of the two forms of beri-beri, of a peculiarly severe type. The co-existence of worms in the dried food may lead one to think of a parasitic malady such as that caused by Anchylostoma duodenale, which has also an anasarcous or œdematous character. But the diagnosis of beri-beri appears to be far more likely. That epidemic, however we interpret it, must rank among the curiosities of the history. But, in the next that we come to, the sickness on board the 'Daintie,' Richard Hawkins master, on a voyage in 1593 through the Straits of Magellan, the disease is typical scurvy; and the observations on sea-scurvy by Hawkins himself are among the best that we

have for the period, and, indeed, until long after the Elizabethan period[1].

The 'Daintie,' a nearly new ship of 300 to 400 tons, weighed anchor from Blackwall on April 8, 1593. She was deeply laden with merchandise for trade and accompanied by a victualler, of 100 tons, the 'Hawk.' It was not until June 12, that they got away from Plymouth. They put in at the Cape de Verde islands, about whose climate and health Hawkins makes some observations already quoted. Sailing thence they had come within three or four degrees of the Line, when scurvy broke out:

"My company within a few days began to fall sick of a disease which seamen are wont to call the scurvie; and seemeth to be a kind of dropsie, and raigneth most in this climate of any that I have heard or read of in the world, though [it is found] in all seas. It possesseth all those of which it takes hold with a loathsome sloathfulnesse, *that even to eate* they would be content to change *with sleepe and rest*, which is the most pernicious enemie in this sickness that is known. It bringeth with it a great desire to drink, and causeth a general swelling of all parts of the body, especially of the legs, and gums; and many times the teeth fall out of the jaws without pain. The signs to know this disease in the beginning are divers,—by the swelling of the gums, by denting of the flesh of the legs with a man's finger, the pit remaining without filling up in a good space; others show it with their laziness; others complain of the crick of the back, etc., all which are for the most part certain tokens of the infection. The cause is thought to be the stomack's feebleness by change of air in intemperate climates, of diet in salt meats, boiled also in salt water, and corrupted sometimes; the want of exercise, also, either in persons or elements, as in calms."

Hawkins then recalls the experience of the Queen's fleet in 1590, at the Azores, the ships being in calm weather for six months: "in which voyage, towards the end thereof, many of every ship (saving the 'Nonpereli' which was under my charge and had only one man sick in all the voyage) fell sick of this disease and began to die apace."

Hawkins wrote out the account of his 1593 voyage some time after, and did not print it until 1622; but it may be supposed that the views about scurvy therein expressed were the same

[1] Purchas, IV. Bk. 7, Chap. 5, (reprinted from Hawkins's own narrative of the voyage, published a few months after the author's death in 1622).

that he held and acted upon in his earlier life[1]. Thus his remarks upon the prevention and cure of scurvy, about to be given, may be taken to stand for the practical wisdom or sagacity of the Elizabethan period. The ship should be kept clean, vinegar should be sprinkled and tar burned. In hot latitudes salt meats should be shunned, and especially salt fish. Salt water should not be used to dress the meat, nor to wash shirts in; nor should the men sleep in their wet clothes. The crews should be set to various exercises, and encouraged to various pastimes. At this point he seems to feel that he is a layman giving medical advice, and interpolates:

"And I wish that some learned men would write of it, for it is the plague of the sea and the spoil of mariners. Doubtless it would be a work worthy of a worthy man, and most beneficial for our country, for in twenty years (since I have used the sea) I dare take upon me to give account of ten thousand men consumed with this disease."

The learned man was forthcoming in due course, in the person of John Woodall, surgeon-general to the East India Company; and we shall see what he made of it. Meanwhile, in default of professional guidance, we may hear Hawkins himself:

"That which I have seen most fruitful for this sickness is sour oranges and lemons, and a water called Dr Stevens his water, of which I carried but little, and it took end quickly, but gave health to those that used it. The oyle of vitry [vitriol] is beneficial—two drops in a draught of water with a little sugar. But the principal of all is the air of the land; for the sea is natural for fishes, and the land for men. And the oftener a man can have his people to land, not hindering his voyage, the better it is and the profitablest course he can take to refresh them."

Hawkins, as well as his contemporaries, as we shall see, knew what lime-juice could do for scurvy, and knew also the limit of its powers; it was useful, as he had himself found; but

[1] Mr J. K. Laughton (*Dict. of National Biography*. Art. "Hawkins, Sir Richard") points out that Hawkins's narrative of the 'Daintie's' voyage had not always been authenticated by reference to notes or documents. It seems probable also, from his remarks on the epidemic in Drake's fleet after leaving the Cape de Verde islands in 1585, that he trusted his memory too much. But that objection of writing from memory has no force as against his general observations and reflections on scurvy.

much else was needed to ward off scurvy. After experience showed clearly enough that some commanders with the same stores as others could carry their crews through a long voyage without scurvy; Hawkins himself, in the 'Nonpareil' in 1590, had only one man sick of it, while it was general in the fleet. In the voyage of 1593, for all his knowledge and resource, he appears to have found circumstances too hard for him. His crew showed their bad habits while the ship lay at Plymouth; as in Lancaster's experience two years before, the evil habits of sailors told upon their constitutions, so that they became an easy prey to monotonous living at sea. Scurvy broke out when they were within three or four degrees of the Line: "The sickness was fervent, every day there died more or less." The ship's course was accordingly turned westward, although they were too far south to benefit by the north-east trade wind; and in the end of October they came to the coast of Brazil at Santos, four months and a half out from Plymouth. At Santos they obtained 200 or 300 oranges and lemons, and a few hens; there were so many men sick that there were not above three or four oranges or lemons to a share: "Coming aboard of our ships there was great joy amongst my company, and many with the sight of the oranges and lemons seemed to recover heart." It is the great and unknown virtue of that fruit, he says, to be a certain remedy for this infirmity. The rest of the voyage possesses no special interest for us. The scurvy had "wasted more than half of my people;" so that Hawkins took the crew and provisions out of the 'Hawk,' and burned her. He left the Brazilian coast on December 18, passed the Straits of Magellan, and after some filibustering on the Chilian and Peruvian coasts, was captured by a Spanish ship, and sent home to Spain to be ransomed.

Hawkins, it will have been remarked, was no bigoted "lime-juicer;" although he knew the virtues of anti-scorbutic acids, he had a correct apprehension of the need of cleanliness, dry clothing, exercise, amusements and discipline, and if he had understood the need of wind-sails for the ventilation of 'tween-decks, he would have had as scientific a grasp of the whole question as Blane had two centuries after. But in the end of

the Tudor period, and in the Stuart period, with abounding enterprise and national expansion, there was little sense of the personal need of breathing space, whether in ships or in houses. The number of souls on board, in proportion to a ship's tonnage, was twice or thrice as great as the Board of Trade now allows. It was not only in long voyages, or in the monotony of tropical calms, that scurvy was apt to invade a crew. The following experience, on our own shores, is credible enough: In 1611 Purchas was shown a letter from Newfoundland, giving an account of a winter spent there, the writer taking credit to himself for the small amount of scurvy among the men under him: in a company of 39 persons, only four were wanting in the spring; but, by way of contrast, he recalls what happened at home in the year 1600[1]:

"One Richard Fletcher, that is master pilot here, and a director of the fishing, reported unto me that he was one of the company, consisting of forty persons, that went in a drumbler of Ipswich called the 'Amitie,' to the north of Ireland about eleven years ago from London in the late Queen's service under the charge of one Captain Fleming, and continued there the space of two years. In which time two and thirty died of the scurvie, and that only eight of them returned home, whereof the said Richard Fletcher was one.... notwithstanding that there were to be had fresh victuals and many other helps, which their country [Newfoundland] as yet hath not, but in good time may have."

We have not yet come to any deliverance of the faculty on the subject of scurvy; Hawkins appears to be giving merely his own experience and reflections. Beside these we may here place the contemporary observations and practice of the French laymen, which are expressly at variance on some points with medical teaching. Some time previous to 1609, Marc Lescarbot wrote an account of 'the voyage of M. de Monts into New France;' the expedition sailed from Havre in March, 1604. Their first winter in Canada is thus related[2]:

In the meanwhile the cold and snows came upon them....Many idle, sluggish companions drank snow-water, not willing to take the pains to cross the river. "Briefly, the unknown sicknesses like to those described unto us by James Quartier in his relation, assailed us. For remedies there was none to be found. In the meanwhile the poor sick creatures did

[1] Purchas, part IV. p. 1877. [2] *Ibid.* p. 1623.

languish, pining away by little and little for want of sweet meats, as milk or spoon meat for to sustain their stomachs, which could not receive the hard meats, by reason of let, proceeding from a rotten flesh which grew and over-abounded within their mouths; and when one thought to root it out, it did grow again in one night's space more abundantly than before....There died of this sickness thirty-six; and thirty-six or forty more that were stricken with it recovered themselves by the help of the Spring, as soon as the comfortable season appeared. But the deadly season for that sickness is the end of January, the months of February and March, wherein most commonly the sick do die, every one at his turn, according to the time when they have begun to be sick; in such sort that he which began to be ill in February and March may escape, but he that shall overhaste himself, and betake him to his bed in December and January, he is in danger to die in February and March, or the beginning of April....M. de Poutrincourt made a negro to be opened that died of that sickness in our voyage, who was found to have the inward parts very sound except the stomacke, that had wrinkles as though they were ulcerated."

Then follow Lescarbot's views of the treatment and prevention of scurvy. After advising to avoid "cold" meats without juices, gross and corrupted, salted, "smoaky," musty, raw and of an evil scent, including dried fishes, he proceeds:

"I would not, for all that, be so scrupulous as the physicians, which do put in the number of gross and melancholy meats, beeve's flesh, bear's, wild boar's and hog's flesh (they might as well add unto them beaver's flesh, which notwithstanding we have found very good), as they do amongst fishes the tons [tunnies], dolphins, and all those that carry lard; among the birds the hernes, ducks and all other water-birds; for, in being an over-curious observator of these things, one might fall into the danger of starving. They place yet among the meats that are to be shunned, bisket[1], beans and pulse, the often using of milk, cheese, the gross and harsh wine and that which is too small, white wine, and the use of vinegar"

—just like our own great masters in prohibitory dietetics.

Lescarbot's advice agrees on the whole with that of Sir R. Hawkins: the men should be well shod and clothed, merriment should be encouraged, and again:

"Good wine taken according to the necessity of nature, it is a soveraigne preservative for all sickness, and particularly for this. The young buds of herbs in the Spring time be also very soveraigne....We have had some sick that have been (as it were) raised up from death to life, for having eaten twice or thrice of a coolice made of a cock."

[1] Woodall defends the use of biscuit in his *Surgeon's Mate*, published in 1617.

In the voyage of Sir Thomas Smith to Baffin's Bay in 1616, the treatment of scurvy by vegetable juices is mentioned: "Next day, going ashore on a little island we found great abundance of scurvie grass, which we boiled in beer, and so drank thereof, using it also in sallet, with sorrel and orpen, which here groweth in abundance; by means whereof, and the blessing of God, all our men within eight or nine days shall gain perfect health, and so continue till our arrival in England[1]."

On the other hand, those who appear to have had the most correct intuition of the teaching of the schools were the Red Indians. Lescarbot says that, in the treatment of scurvy, "they use sweating often." Perhaps they had some dim notion of the doctrine of peccant humours: at all events they clung to the alterative practice until long after that date, with a tenacity second only to that of the European faculty itself.

Scurvy in the East India Company's Ships: Professional Treatment.

Until the end of the Tudor period, scurvy had been only an occasional incident of English voyages. But as soon as the regular trade to the East begins, we find it a common experience.

The English voyages to the East Indies by the Cape route really began in 1591, when Captain James Lancaster sailed first in command of ships belonging to the Company of Merchant Adventurers; but it was not until 1601 that he sailed again to the East Indies in command of the first ships of the East India Company, which had been formed the year before.

The three ships in 1591, the 'Penelope,' 'Marchant Royal,' and 'Edward Bonaventure,' cleared from Plymouth on April 10[2]. They crossed the Line on June 6, by which time two men were dead and divers sick. In the tropics so much rain fell that "we could not keep our men dry three hours together, which was an occasion of the infection among them, and their eating of salt victuals, with the lack of clothes to shift them." On this first voyage,

[1] Purchas, III. 847.

[2] *The Voyages of Sir James Lancaster, Knight, to the East Indies.* Hakluyt Society, ed. Clements Markham, 1878; and in Hakluyt's *Principal Navigations*, II. pt. 2, p. 102.

Lancaster began the practice which was generally followed when the East India trade in English ships became established; before attempting to double the Cape of Good Hope, he refreshed his crews, who were weak and sick in all three ships, by a sojourn ashore at the Bay of Saldanha, a few leagues to the north of Table Bay. The voyage had already lasted more than three months from Plymouth, and about six weeks from the Line[1].

At a muster on August 1, in the Bay of Saldanha, Lancaster found that he had 198 men sound and whole, of whom he assigned 101 to the 'Penelope,' and 97 to the 'Edward Bonaventure,' sending home 50 more or less unfit men in the 'Royal Merchant.' Scurvy, he says, was the disease:

"Our soldiers, which have not been used to the sea, have best held out, but our mariners dropt away, which in my judgment, proceedeth of their evil diet at home." The voyage was continued to the East Indies, the next that we hear of the state of health being at Penang in the beginning of June 1592, or some fourteen months out. The men were then very sick and many fallen; the sick were landed, and twenty-six died there, but not of scurvy, we may surmise. They had now left but thirty-three men and one boy, "of which not past twenty-two were found for labour and help."

The two ships sailed for home from Point de Galle on December 8, 1592, and reached St Helena on April 3, 1593; one man was sick of the scurvy, and another had been suffering from the flux for nine months, but on the island both shortly recovered their perfect health. Instead of reaching England, the ships were carried to the West Indies, where, after an attempt to navigate them northwards, they were wrecked, and the small remnants of their crews dispersed.

Lancaster's first voyage for the East India Company in 1601[2] was "with foure tall shippes, to wit, the Dragon, the Hector, the Ascension, and Susan, and a victualler called the Guest." The Company, founded in 1600, began with a capital of £72,000,

[1] The slowness of the passage round the Cape of Good Hope in old times was due less to the build or rig of the ships than to the course shaped: instead of steering southwest from Madeira across the Atlantic almost to the coast of Brazil at Cape San Roque, so as to get the north-east trade wind, and thence on another tack in a wide sweep round to the Cape with the south-east trade wind, the earlier navigators sailed past the Cape de Verde islands and along the Guinea coast, keeping within meridians 20 degrees to the eastward of the modern track, and so falling into the tropical calms at one part, and at another part of the voyage into the baffling south-east trades, varying in force according to the season.

[2] Purchas, I. 147.

which was laid out in the purchase and outfit of the ships, and in loading them with merchandise. The crews were as follow :

Dragon,	600 tons,	202	men.
Hector,	300 „	108	„
Ascension,	260 „	82	„
Susan,	— „	88	„
		480	
Guest,	130 tons.		

Further, "in every of the said ships, three merchants to succeed one the other, if any of them should be taken away by death"—a sufficient indication of the risks of foreign trade.

The ships, having loaded in the Thames, sailed from Dartmouth on April 18, 1601, and got clear of Tor Bay on the 22nd. On July 24, two months from the Channel, they crossed the southern tropic. But they had been so long under the Line that "many of our men fell sick." On August 1, in 30° S., they met the south-west wind, "to the great comfort of all our people. For, by this time very many of our men were fallen sick of the scurvy in all our ships, and, unless it were in the general's ship only, the others were so weak of men that they could hardly handle the sails." Head-winds again hindered their course, and "now the few whole men we had began also to fall sick, so that our weakness of men was so great that in some of the ships the merchants took their turn at the helm and went into the top to take in the top sails, as the common mariners did." Lancaster at length made Saldanha Bay, where he had landed to refresh his crews on his first voyage round the Cape ten years before. The state of three of the ships "was such that they was hardly able to let fall an anchor to save themselves withall;" but "the general went aboard of them and carried good store of men, and hoysed out their boats for them....And the reason why the general's men stood better in health than the men of other ships was this: he brought to sea with him certain bottles of the juice of lemons, which he gave to each one as long as it would last, three spoonfuls every morning fasting, not suffering them to eat anything after it till noon. This juice worketh much the better if the partie keepe short diet, and wholly refrain salt meat, which salt meat, and long being at the sea, is the only cause of the breeding of this disease. By this means the general cured many of his men and preserved the rest, so that in this ship (having the double of men that was in the rest of the ships) he had not so many sick, nor lost so many men as they did, which was the mercie of God to us all."

At Saldanha Bay they bartered with the natives for an abundant supply of fresh meat and other provisions, and in due time doubled the Cape of Good Hope. On Christmas day,

eight months out from England, they put in to Antongil Bay, on the east side of Madagascar. On landing they found a writing on the rocks that five Dutch ships had sailed thence two months before, having "lost between 150 and 200 men while they roade in that place." The English had a similar experience in store for them: on board Lancaster's ship, the master's mate, the preacher, the surgeon and some ten others, died; and, in the vice-admiral's ship, the master with other two. It was mostly the flux that they died of, brought on by the drinking-water, or by the excessive wetness of the season, or by "going open and cold in the stomacke, which our men would often do when they were hot" (Hawkins gives the latter reason for flux at the Cape de Verde islands).

The references to scurvy before reaching the Cape, and to dysentery in Madagascar, are all that is said of sickness in this first venture of the East India Company. But in the accounts of the voyages which regularly followed we hear a great deal of the loss of men at the factories, or in the country trade, or on the voyage home, as well as on the outward voyage[1]. The Directors in London were naturally well aware how greatly their ventures were imperilled and their profits reduced by the enormous loss of men. Under their own eyes ships would arrive in the mouth of the Channel with crews so weakened that they had to be met at Scilly with help to navigate them through the narrow seas to the Thames. By their correspondence from abroad, they were frequently hearing of artificers dying in their factories, of ships arriving out with so many men dead, and of other ships cast away, partly by stress of weather no doubt, but sometimes from inability of the crews to man them. Accordingly we find that they were alive to the best means of preventing "flux, scurvy, and fever." Lancaster, as we have seen, carried lime-juice on his first voyage for the Company in 1601. In the Court minutes of August 13, 1607, the following were ordered to be provided with expedition: "Lemon water, 'alligant' from Alicante, a wine very fit for beverage and good against the flux, and old corn, etc." At the Court of Directors on December 10,

[1] *Calendar of State Papers.* East Indies (under the respective dates).

1614, there was considered an "offer of Dr Burgis to present the Company with an antidote against poison, scurvy, and other diseases to which people are subject these long voyages: Sir Thomas Roe and Captain Keeling to confer with him and report their opinions." Trial was also to be made of baking fresh bread at sea, with the grinding of corn, "an exercise fit to preserve men in health." The offer of Dr Burgis was accepted; and on January 26, 1615, the minutes of the Court mention "instructions in writing, and boxes of such things as are to be used, for prevention of the flux, scurvy, and fever, prepared by Dr Burgis, to be delivered to each ship; the cost, about £23, to be paid." In the minutes of the Court, November 22, 1619, there is reference to another preventive of scurvy: "The fleet to be supplied with 15 tons of white wine, to be drunk at the Line, and the Cape, which is used by the Dutch to preserve men from scurvy, and will refresh the men and scour their maws, and open and cool as well as lemon water"—the latter having been in all probability disliked or refused by the men. In 1624, "the death of mariners" is a topic at the Court of Directors; again, on October 15, 1626, the Court considers of the great mortality from scurvy in the 'Charles' and 'Hart,' homeward bound, and how to prevent it. Some were of opinion that lemon water was very good, but Mr Styles related that tamarind was the excellentest thing. However, there had been plenty of tamarinds aboard the ships; and on Lieutenant Hill being called in, he testified that the crews had all got tamarind, but they were all debauched people.

John Woodall, surgeon to St Bartholomew's Hospital, was at this time surgeon-general to the East India Company, having medical charge of their dockyard at Blackwall; his name appears in the Court minutes as early as 1614. In 1617 he published his 'Surgion's Mate,' "chiefly for the benefit of young sea-surgions imployed in the East India companies affairs," and dedicated it to Sir Thomas Smith, himself a navigator, and then chairman of the Court of Directors. This practical manual is largely occupied with the management of fractures, dislocations, amputations, and the like, a part of his subject wherein Woodall was thoroughly competent; but there appears also in the title, "the cure of the

scurvie, the fluxes of the belly, of the collica and iliaca passio, tenasmus and exitus ani, the callenture." The section on scurvy, twenty-six pages long, is the one that here concerns us. This was what Sir Richard Hawkins had desired: "And I wish that some learned men would write of it, for it is the plague of the sea and the spoil of mariners." Woodall begins by disclaiming learning: "A learned treatise befits not my pen." But, at all events, his was the voice of the faculty, and he plunges boldly into pathology in the very first lines: "Scurvy is a disease of the spleen, whereby it is sometimes wholly stopped" etc. Being a man of much good sense, Woodall quickly leaves that line of remark, for a time at least. He repeats all the familiar experience of Hawkins, Lancaster, and the numerous captains of East Indiamen, with whom he must have conversed many times (it does not appear that he had himself sailed). He mentions the great benefit to the crews from landing at the Cape, with the fresh air and food, scurvy being thereby cured "without much other help." He enforces the need of changes of clothing, and other things in the regimen on board, just as Hawkins and others were wont to do in practice. He is as clear on the virtues of lime-juice as Lancaster, and copies somewhat closely the practice of the latter in 1601: "each morning two or three spoonfuls, and fast after it two hours"; his originality appearing in the rider, grateful to seamen: "and if you add one spoonful of aqua vitae thereto, to a cold stomach it is the better." He mentions that a "good quantity of juice of lemons is sent in each ship out of England, by the great care of the merchants, and intended only for the relief of every poor man in his need." The ship's surgeon is advised to lay in a store of fresh lemons and oranges where they were to be had on the voyage, and of tamarinds at Bantam.

So far, Woodall merely sets down what every shipmaster knew as to the things that bring on scurvy, the best regimen to keep it off, and the extraordinarily rapid curative effect of lime-juice and of change to land air and fresh food. But there was a certain professional doctrine of scurvy, and a treatment of it *secundum artem*, namely the wisdom of learned men which Hawkins had called for; and we have now to see what that

was, according to Woodall. His pathology is that of "obstructions," a curious fancy of the learned[1].

The spleen, said Woodall in his opening lines, is the chief seat of obstruction; but on resuming the pathology, he proceeds to obstructions also of the liver and brain:

"But it is plain that this grief is a lazy foul disease with obstructions of the liver, or spleen, or both; as also it appeareth that the head is much diseased, and that there is great obstructions in the brain, for that the eyes not only look evil coloured, but also the gums putrefy, and the teeth grow loose, and all the sinewy parts of the body bear their part in the disease, for the shrinking and withering of the sinews, with the great pains the party hath, declareth no less" (p. 180).

This theoretical pathology Woodall supports by an appeal to morbid anatomy:

"Also it is manifest that divers of those which have been opened after death have had their livers utterly rotted"—others having their livers much swollen, and the spleen swollen, others full of water, others their lungs putrefied and stunk while they have lived, (which last may have been an incorrect inference from the foul state of the mouth).

Such being the pathology of the disease, he comes next to the indications of cure; and these he takes from "a famous writer, Johannes Echthius." They are:

1. The opening of obstructions.
2. The evacuating of offending humours.
3. The altering the property of the humours.
4. The comforting and corroborating the parts late diseased.

The order of treatment, *lege artis*, is accordingly as follows: the administration of a clyster or clysters; the opening of a vein, if strong ("but beware of taking too much blood away at once");

[1] It seems to have passed into common usage, as "to lie in cold obstruction and to rot" (*Meas. for Meas.* III. 1), and to have been kept up therein after the faculty had dropped it—if indeed Byron's line, "Where cold Obstruction's apathy" be a survival of medical terminology. There is an instance of the same kind of survival in the use of "scorbutic;" at one time land-scurvy was detected (under the influence of theory) in many forms, and we find in the *Pickwick Papers* a late reminiscence of that singular dogma in the "young gentleman with the scorbutic countenance,"

next day after the bleeding, "if he can bear it," give him pills of euphorbium or gamboge; and lastly, "if you see cause," certain days after you have given of any of your former laxatives, you may give a sweat to the patient in his bed. Thus the indications from the pathology would be fulfilled—opening of obstructions, evacuating of ill humours, and altering the property of the humours. It should be said for Woodall that his practice was better than his theory. Thus, he cautions the young dogmatists who sailed as surgeons in East Indiamen, not to carry their principles too far; he has heard that they are somewhat fond of the lancet, and he cautions them not to take too much blood at sea, as excessive depletion "makes the disease worse;" he cautions them also as to the use of gamboge.

We may now proceed with a few more illustrations of what the Company's ships were actually experiencing during the period that those questions were before the Court of Directors[1].

In the sixth voyage for the Company, under the command of Sir H. Middleton, the captain of the 'Darling' and three of his merchants died at Tecoa, and most of the men were ill. In the eighth voyage, when homeward bound between the Cape and St Helena in the month of June, many of the men fell ill with scurvy, and the ship had to come in to Waterford instead of the Thames. A similar experience befell Captain Thomas Best in the 'Dragon' and 'Hosiander,' carrying together 380 persons. Having left Gravesend on February 1, 1612, he completed his trading in the Indies, and arrived in the Thames on June 15, 1614, six months from Bantam. The scurvy in this voyage comes in towards the end. On March 4, 1614, "I did set sail in the roade of Saldanha; yet notwithstanding our short passage, having been from Santa Helena but two monethes and nine days, the one half or more of our company are laid up [on June 4] of the scurvie and two dead of it. Yet we had plentie of victuals, as beef, bread, wine, rice, oil, vinegar, sugar; and all these without allowance. Note that all our men that are sick have taken their sickness since we fell with Flores and Corvo. For since that time we have had it very cold, especially in two great storms....From the Cape of Good Hope to the islands of Flores and Corvo I had not one man sick." While in the Malay Archipelago they had buried twenty-five men at one place.

On November 3, 1618, the Directors have letters from two of their

[1] The three earlier instances from Purchas, I. 248, 466, the later from the *Cal. State Papers*, East Indies.

captains at the Cape, of July 6 and 7, with news of their arrival there on June 26, and the loss or sickness of many men, partly through the stinking beer, the tainted beef, the lack of fresh provisions at the Cape, and the want of warm clothes. A letter of February 25, 1619, announces the arrival of the 'Peppercorn' in Bantam roads: A great many men had died in the ten-months' voyage between England and Bantam; putrefied beef and pork, "not man's meat," the chief cause of sickness. When they arrived at Bantam, not six men able to work; the whole fleet in the like distress. Twenty-five men in all dead or drowned. A letter from Batavia, January 11, 1622, says the master of the 'Anne' and 14 men of the fleet were dead: "so many men are deceased that they have not enough to man all the ships now in the roads." The 'Diamond' sailed from England on October 8, 1621, and after a "long and tedious voyage" arrived at Jacatra previous to November 24, 1622: enclosed are the accounts of those men who have died, and nine wills. Another letter from Batavia, sometime in 1623, covers an "abstract of the men deceased in the ships."

On March 28, 1624, the 'Royal James,' with five others, sailed from the Downs; she called at Saldanha Bay, and arrived on or before November 15, at Swally bar, Batavia; the bread had been very bad, the water too little, the beef not fit for men; have enclosed the names of those deceased. The 'Jonas,' also arrived out at Batavia on November 15, appears to have been one of the five others; she called at Saldanha Bay on July 19; "the wholesomeness of the air and the herb baths caused the most part of their sick men to recover in ten days from the scurbeck." In June, 1625, the 'Anne' had been at Mocha for eight months in great distress, with most part of her men dead and the ship ready to founder.

Writing on October 13, 1625, from Batavia to the East India Company in London, Governor Hawley says that the 'London' had arrived out on August 23, with loss of 36 men, and 80 sick. She reported the 'Discovery' to have left the Cape for St Helena, having lost 21 men; two other ships, the 'Moon' and 'Ruby' had their crews "in remarkable health." On September 14, the 'Swallow' arrived out, having lost only 3 men. Of 46 men shipped in the 'Abigail' out of England, all were dead but 5, in her coasting voyages upon Sumatra. Most of the workmen and soldiers sent in the 'London' had arrived; "but since, by disorders, are dead, as are those in the 'Swallow.' The smiths are all dead; of the armourers, only John Speed and a boy alive. Most other workmen dead or incapable. This is not remissness of government, but the newcomers, dreaming of nothing but sack and sugar-plums in India, are with much difficulty brought to obedience." A Dutch ship, the 'Leyden' arrived out in 1626, with loss of 22 men, having been twelve months on the passage.

In the end of October, 1628, the 'Morris' reached the mouth of the Channel from Bantam, "which was most happily met with near Scilly by Captain Bickly, who was sent out to relieve any ship from the Indies, she being in a very weak state by reason of an infectious disease." She reached

the Downs safely with two other East Indiamen; but having been driven from her anchors in a great storm, was wrecked on the coast of Holland previous to November 19. Next year, about October 28, 1629, the 'Mary' of the East India Company was reported to have put into Scilly having lost most of her men by sickness. Therefore, Sir H. Mervyn, of H.M.S. 'Lyon,' in the Downs, having got early word of the 'Mary's' distress, writes to E. Nicholas, to say that if the Company desire a convoy for the 'Mary' from their lordships of the Admiralty, "she being rich," he (Mervyn) hopes that Nicholas will remember him.

But, although it was not unusual for ships to come home with crews weakened by scurvy, it was not invariable. The 'William' returned to England in 1628, as rich a ship as the Company ever had from the East Indies, with not a sick man in her, nor any dead on the way; her lading was computed to be worth £170,000[1].

In a despatch of February 6, 1626, Hawley gives an account of a truly disastrous sickness in the factory and among the Company's ships at Batavia during the previous year, which illustrates another risk than that of scurvy or flux, and an experience in the East Indies not altogether exceptional[2].

"On March 12, I dispeeded the 'Diamond' for Japan to fetch boards, planks, etc. [to repair the 'Bull' with]; but hardly had fourteen days passed when the 'Bull's' men fell sick and died daily; then the 'Reformation's' men died by five, six or more in a day; in a short time the 'Bull's' men all died but the master and one more, who were dangerously sick, and in the 'Reformation' the master and all the men lay at God's mercy. We were forced to relieve them by blacks, and hale the ships to the open bay [they would seem to have been careened] where they rode like wrecks without other help than some few to comfort their sick, for more from the other ships might not be spared. The contagion was so pestilent that their blood, being licked by dog or cat, caused them to swell, burst and die. It was more moderate on shore, and was least on the ships in the open bay, though they also were daily visited....The 'Diamond' returned on April 11, with planks etc.; also slaves and 44 Chinamen, which were with no small charge procured, and who all fell sick, and 10 or 12 died....Thinking the mortality was occasioned, not by pestiferous air or soil, nor by any noxious tree, but by surfeit and the wet monsoon, I enacted orders for government building, and cleansing the trees to get more air. Wanted no provisions of fresh victual; could at pleasure command neighbours to fish and fetch anything

[1] *Cal. S. P.* Colonial. East Indies. Dec. 24, 1628.
[2] *Ibid.* Feb. 6, 1626, p. 146.

needed, and the island itself furnished deer. On April 12, took general view of all people, as follows:

	English in health	English sick	Portuguese sick
On shore	40	58	5
In the 'Charles'	32	10	
„ 'Roebuck'	16	2	
„ 'Bull'	2	8	
„ 'Reformation'	23	14	12
„ 'Abigail'	8	3	
„ 'Rose'	7	2	5
	128	97	22

—leaving, of course, an immense proportion dead.

These are instances from the records of the East India Company during the first thirty years of its existence. It would be tedious, even if it were practicable, to follow the history continuously. But meanwhile to show that its experiences, good and bad, remained much the same until long after, let us take two voyages in the year 1682. Governor William Hedges, passenger on board one of the Company's ships, enters in his diary the 25th of May, 1682, being then off the Cape of Good Hope: "Not lost a man (except Mr Richards) either by sickness or any other accident, since we left England, which wants but three days of four months, and is just two months since we passed the Equinoctial Line," nothing being said of sickness in the rest of the voyage. But another of the Company's ships the same year fared worse: "December 9, 1682, ship 'Society' arrived at Balasore. She left the Downs on May 30, and, not touching at any place by the way, lost seventeen men of the scurvy[1]."

Sickness in the Colonizing of Virginia and New England.

Leaving now the long voyages of the English beyond the Line, and their factories in the East, let us see how they fared as regards health when they merely crossed the Atlantic in their own latitudes. The earliest series of voyages to Virginia, at Raleigh's instigation, from 1585 to 1590, have been already referred to. The continuous history of Atlantic voyages, and of

[1] *William Hedges' Diary.* Hakluyt Society, 1887, I. 24, 54.

the North American colonies, begins with the expedition of 1609 under Sir Thomas Gates and Sir George Somers[1].

Seven of the ships fitted out in the Thames, and sailed from Woolwich on May 15, 1609. Having been joined at Plymouth by two more, the fleet sailed thence on June 2, and from Falmouth on June 8. The expedition included "many unruly gallants, packed thither by their friends to escape ill destinies," with the proportion of women and children usual among emigrants, as well as horses, and probably other live stock. The navigation, to reach Western land in 37° N., appears to have been somewhat erratic:

> "We ran a southerly course from the tropic of Cancer, where, having the sun within six or seven degrees right over our head in July, we bore away West; so that by the fervent heat and loomes breezes, many of our men fell sick of the calenture"—Noah Webster takes that to mean a spotted pestilential fever—"and out of two ships was thrown overboard thirty-two persons. The vice-admiral [the 'Diamond'] was said to have the plague in her; but in the 'Blessing' we had not any sick, albeit we had twenty women and children."

A storm came on, in which the ships were scattered, the admiral's ship being driven to the Bermudas and there wrecked[2]. In the storm "some lost their masts, some had their sails blown from their yards; the seas over-raking our ships, much of our provision was spoiled, our fleet separated, and our men sick, and many died; and in this miserable state we arrived at Virginia." The 'Blessing,' on board which was Gabriel Archer, the principal narrator of events, seems to have fared better than the rest: "The 'Unity' was sore distressed when she came up with us; for, of seventy landmen [emigrants], she had not ten found, and all her seamen were down, but only the master and his boy, with one poor sailor; but we relieved them, and we four consorting, fell into the King's River [James River] haply the 11th of August." They found the colony "all in health (for the most part)." There were fourscore living 20 miles from the

[1] *A Letter of M. Gabriel Archar*, in Purchas, pt. IV. p. 1733; Smith's *Virginia*, in Pinkerton, XIII. 99; W. Strachey, in Purchas, pt. IV. p. 1753.

[2] Theobald makes this the storm and shipwreck which Shakespeare brings into the *Tempest*.

Fort, who fed upon nothing but oysters eight weeks' space. "After our four ships had been in harbour a few days, came in the vice-admiral, having cut her mainmast overboard, and had many of her men very sick and weak." This was the ship that was said to have the plague in her. The admiral and his ship's company, wrecked on the Bermudas, fared in health best of all; the whole number of 150 persons reached Jamestown in due course, to find only 60 remaining alive of the 350 who had formed the complement of the other ships. Part of the mortality had happened on board ship, but probably the most of it after landing: Jamestown "is in a marish ground, low, flat to the river, and hath no fresh water springs serving the town, but what we drew from a well six or seven fathom deep, fed by the brackish river oozing into it, from whence I verily believe the chief causes have proceeded of many diseases and sicknesses which have happened to our people, who are indeed strangely afflicted with fluxes and agues." Lord De La Warre, one of the early governors, had a succession of illnesses—hot and violent ague, followed by a relapse still more violent and lasting a month, "then the flux surprised me and kept me many days," then the cramp, with strong pains, afterwards the gout, and finally the scurvy—which last, however, might have been the eczema of gout, although it was said to have been cured by the oranges and lemons of the Western Islands, and by the voyage thither[1].

Much in these early ventures was put down to climate, which was really due to other causes. There are, of course, unhealthy climates; but a great deal of the talk in the 17th and 18th centuries about the "tainted air" of "foreign climes" was mere confusion of ideas. A more correct view of events was that of the Governor and Council of Virginia, in a letter of January 30, 1624, to the Virginia Company in London:

"The mortality, which is imputed to the country alone, is chiefly caused by the pestilent ships, which reach Virginia victualled with musty bread and stinking beer, heretofore so earnestly complained of....Robert Benet in his lifetime boasted that the sale of four butts of wine would clear a voyage. Rotten wines destroy their bodies and empty their purses[2]."

[1] Purchas, IV. p. 1762.

[2] *Cal. S. P.* America and West Indies.

The letter then goes on to relate how sickness had brought down great numbers "since their last." According to Purchas, the emigration to Virginia in three years immediately preceding this, the years 1619, 1620 and 1621, had amounted to 3570 persons in 42 ships. Overcrowding, we may be sure, was the rule. We shall find particular evidence of it in speaking of West Indian colonization in the sequel; and for the present, it may suffice to quote a document of April 24, 1638, a list of 110 passengers for New England per 'Confidence' of 200 tons.

If Virginia was settled by a crew of broken gallants and their humbler followers, the New England colony was officered by strict Puritans, who were accompanied by men and women sharing, as nearly as might be, the same beliefs and principles of conduct. The records of the Massachusetts Bay settlements might be expected, therefore, to show less of sickness and failure than the Virginian; and so, indeed, they do, although they are by no means clear of it. The first voyage of the 'Mayflower' in 1620, carrying the small sect of Brownists who had tried Holland for a time as a place of refuge, presents nothing for our purpose. Like the settlers along the shores of Chesapeake Bay before them, these first New Englanders had to encounter famine and sickness. Famine appears to have been the cause also of the disastrous epidemics among the Indians along the whole coast from Cape Cod to Cape Charles, on two occasions, the one previous to 1614 and the other in 1619[1]. The emigration to New England really began in 1630, and of one of the expeditions of that year we have authentic particulars by the leader of it, John Winthrop[2]. On board the 'Arbella,' under date April 17, 1630, he enters in his journal:

"This day our captain told me that our landmen were very nasty and slovenly, and that the gun-deck, where they lodged, was so beastly and noisome with their victuals and beastliness as would much endanger the health of the ship. Hereupon, after prayer, we took order, and appointed four men to see to it, and to keep that room clean for three days, and then four others should succeed them, and so forth on."

[1] Dermer, in Purchas, IV. p. 1778: Belknap's *American Biography* ("Life of Gorges"), I. 355.

[2] John Winthrop's *Journal*, p. 11.

Nothing more is said of the health on board the 'Arbella.' The 'Mayflower' and 'Whale' had their passengers all in health, but most of their cattle and horses dead. The 'Success' lost — goats, and many of her passengers were near starved. The 'Talbot' lost fourteen passengers. The colony had various experiences of sickness in due course. In 1633, smallpox proved fatal to whole settlements of Indians: "the English came daily and ministered to them; and yet few, only two families, took any infection by it[1]." In 1646 an epidemic of influenza went among the Indians, English, French and Dutch, "not a family, nor but few persons, escaping it;" few died, not above 40 or 50 in Massachusetts, and near as many at Connecticut[2]. In the spring of 1654, a general fast was appointed by the government of Connecticut, one reason among others being "the mortality which had been among the people of Massachusetts." In 1655 there was another influenza, in 1658 "great sickness and mortality throughout New England," in 1659 "cynanche trachealis," croup perhaps, and in 1662 again general sickness, which, along with drought, called for a day of thanksgiving on their cessation in October[3]. It is beside the purpose to follow the epidemics in America minutely; but before quitting the subject, the following, from a Philadelphia letter of August 24, 1699, will suffice to keep in mind the conditions of emigration which prevailed long after the first voyages: "Arrived the 'Britannia' from Liverpool, which had been 13 weeks on her passage; she had 200 passengers on board,—had lost 50 by death, and others were sickly[4]."

West Indian Colonization: Yellow Fever and the Slave Trade.

The other field of English colonial enterprise that concerns us is the West Indies. The West Indian colonies of Britain play a great part in the commercial history, in the naval history,

[1] Winthrop, I. pp. 119, 123. [2] *Ibid.* II. 310.

[3] Refs. in Noah Webster's *Hist. of Epid. and Pestil. Diseases.* Hartford, 1799, I. 189, 191, 193.

[4] Letter of Norris, in *Hist. of S. Carolina*, I. 142.

and in the legislative history in connexion with the negro slave-trade and the institution of negro slavery. From the very first they play a great part, also, in the history of epidemic sickness; they and the Spanish, French and other colonies there were the peculiar home of yellow fever for two centuries, having shared that unenviable distinction, after a generation or two, with certain ports of the North American continent. The larger part of the history of yellow-fever epidemics falls outside the period to which I here limit myself. But the beginnings fall within it; and as the beginnings raise the whole question of causation, this part of the subject resolves itself into a somewhat comprehensive discussion of the circumstances of yellow fever as illustrated by the first English colonizations in the Caribbean Sea, and the tradings connected therewith.

By far the most important disease-producing conditions in the West Indies arose out of the Guinea slave-trade. But, so that we may set down to that no more than it deserves, we shall have to review also the earlier experiences of English and French emigrants, both on the voyage and in their settlements in Barbados and St Christopher, and, at greatest length, the disastrous first occupation of Jamaica in 1655 by the army of the Commonwealth. It will be convenient to begin the history, in which there is so much to disentangle, with a few facts about the negro labour-traffic to the New World previous to the time when the demands of the sugar-plantations caused it to be established on a great scale.

African negroes were brought first to the West Indies by the Spaniards to work in the mines of Hispaniola. They are heard of as early as 1501, and are much in evidence after that date. The Christian conscience appears to have been at first tender. It was the high purpose of Isabella of Spain to convert the Indies to the Christian faith; and the cruelties of the negro importation and of the forced labour in the mines were obviously inconsistent with the humanitarian teaching of the Gospels. The remonstrances of missionaries were listened to at the Spanish Court, and licences to trade in negroes were either granted under strict conditions or withheld altogether. However, there were rapacious pro-consuls to deal with as well as

monarchs at home, and cargoes of slaves found their way to Cuba, to Hispaniola (St Domingo), and at length to the Spanish Main. Each importation as late as 1518 was still regulated by special licence; but soon after that date a powerful minister sold the privilege to the Genoese, so that it passed somewhat beyond control of the Spanish Court[1]. Connected with these importations in the first quarter of the 16th century, were the disastrous epidemics of two diseases with somewhat similar names and inextricably confused in the records—the great pox and the small pox; it is not easy to say which did the most harm among the native population of the islands and mainland occupied by Spain; but it is said that by disease of one kind or another Mexicans and Caribs on the main, in Hispaniola, and in Cuba, came near to being exterminated[2].

The first English share in the negro traffic over sea fell to John Hawkins and partners, who had not even the excuse of an open market for their wares in the Spanish colonies, and had sometimes to dispose of their negroes by stealth. It would appear that it was still in part for the mines that African negroes were in request. In Richard Hawkins' account of his voyage to the Pacific in 1593, he mentions that he captured a Portuguese ship of 100 tons shortly after leaving the coast of Brazil; she

[1] Saco, *History of African Slavery in the New World* (Spanish). Barcelona, 1879.

[2] Oviedo, in Purchas, III. 996:—"Extract of Gonzalo Ferdinando de Oviedo:—'I had acquaintance with divers which went in the first and second voyages of Columbus; of which was Peter Margarite, commendator in the second voyage, of most respect with the king and queen, who complained of those paines. [Syphilis was prevalent in Barcelona and Valencia previous to 1494. See Chapter VIII.] Soon after, in the year 1496, began the disease to arrest some courtiers; but in those beginnings it was only amongst baser persons of small authority; and it was thought that they got it by having to do with common women. But afterwards it extended to principal persons, and the physicians could not tell what to think of it, so that many died.'...But indeed it came from Hispaniola, where it is ordinary, and the remedy also [guaiacum]. *Our author* (*l.c.* civ.), and Ramusio in his preface to his third Tome, say that the souldiers of Pamfilo de Nuney, having the small pocks, infected the Indians which never before heard of that disease; in so much that of 1,600,000 soules in that island there are so few left, as by and by you shall hear...The covetousnesse of the mine-workers, neglect of diet, change of gouvernours growing worse and worse, caused them to poison, kill and hang themselves, besides those which were consumed by infectious or pestilentiall pocks (those before mentioned out of Ramusio) and other diseases."

was bound for Angola to load negroes to be carried to and sold in the River Plate: "It is a trade of great profit and much used. The negroes are carried to work in the mines of Potosi."

It is not until a generation after that we hear of the English as slave-owners. On February 16, 1624, there were 22 negroes on the English settlements in Virginia, the whites numbering 1253[1]. In somewhat greater numbers, negroes are next heard of in English possession in the Bahamas; but, from the correspondence between the Company of Providence Island in London and their agents in the colonies, it would appear that the policy of using forced labour was by no means admitted by all, or free from difficulties. Thus in 1635 the Company condemned as indiscreet and injurious Mr Rushworth's behaviour concerning the negroes who ran away, "arising, as it seems, from a groundless opinion [of Rushworth] that Christians may not lawfully keep such persons in a state of servitude during their strangeness from Christianity[2]."

Whatever negroes the English colonists possessed at this time they got either by capture or purchase from Dutch and other foreign traders. Thus, in the instructions to a ship-master sailing from London, dated March 19, 1636, captured negroes were to be conveyed to the Somers Islands, those who can dive for pearls to be employed at Providence. Again, the instructions to the captain of the 'Mary Hope,' bound for the West Indies, January 20, 1637, refer to the distribution of negroes "if a prize be taken." And, on June 7, 1643, the earl of Warwick instructs the captain of the 'Elias,' 400 tons, that captured negroes are "to be left at my island of Trinidad[3]." The negro carrying-trade was in those years mostly in the hands of the Dutch, who not only stocked their own colony of Surinam on the mainland but used their small island of Curaçoa as a slave-depot for the supply of colonies belonging to other nations. Thus the governor of Antigua, which had then no negroes, says in a despatch of about the year 1670: "At Curaçoa they [the Dutch] send a vast quantity of negroes to the Spaniard, and of late four ships from Jamaica for ready

[1] *Calendar of State Papers.* Amer. & W. I., I. 57. [2] *Ibid.*
[3] *Cal. S. P.* Amer. & W. I., under the respective dates.

pieces-of-eight carried thence great store. They intend to settle a mart for negroes at Tortola to engross the trade of Porto Rico."

The direct share of England in the negro carrying-trade arose out of the monopoly of the Guinea Company. The history of English interests in Guinea and "Binney" need not detain us. When the first patent for sole trade was granted in 1624, it was felt to be a grievance, as "many had been there almost for fifty years since." The charter was renewed on November 22, 1631; but in course of time, some who had been ousted from their original share in the monopoly traded on their own account, the rivalries at home being aggravated by conflicts with Swedes (in 1653) and Dutch at the factories on the coast. The trade was ostensibly for gold dust and ivory, but live freight soon found a place in English bottoms as well as in Dutch, Swedish, Danish, French, Portuguese, Spanish and others. We may now return to our proper subject—the state of health in the first English and French plantations in the West Indies.

The English and French arrived in the West Indies almost at the same moment. Their experiences were probably not very different, but it happens that it is of the French emigrants that we have particulars, which it is important to introduce here.

In the year 1625, a Norman adventurer of good family, D'Enambuc, sailed from Dieppe in a brigantine armed with four pieces and manned with 35 or 40 men, on a roving cruise to the West Indies[1]. Having been battered by a Spanish galleon at the Kaymans, D'Enambuc made the island of St Christopher. He found it occupied by the native Caribs and a few stranded Frenchmen, who were on good terms with the natives. Shortly after, an English captain ("Waërnard") appears upon the scene, who joined D'Enambuc in the alleged murdering and poisoning of the natives and the plundering of the island. Loaded with his Carib spoils and a quantity of tobacco, D'Enambuc set sail for France, and having sold his tobacco and other things in Normandy, entered Paris with a

[1] The account that follows is taken from Father Dutertre's *Histoire generale des Antilles habitées par les François*, 4 vols., Paris, 1667–1671, which superseded his earlier work of 1654.

fine equipage, thus giving evidence to all men of the fortunes that awaited them in the Indies. In a short time he had an audience of Richelieu, and on the 31st October 1626 the charter was signed of the Compagnie des Isles, granting a monopoly of trade with "les isles situées à l'entreé du Perou"—namely St Christopher and Barbados. The Company raised 45,000 livres, of which capital Richelieu held 10,000 livres in his own name. The money was spent in fitting out and furnishing with stores three ships—the 'Catholique' at Havre, a craft of 250 tons, and the 'Cardinal' and 'Victoire' at St Malo, two much smaller vessels. Numerous poor peasants and artisans from Brittany and Normandy were induced to go out as colonists, the 'Catholique' (250 tons) carrying 322 souls, the 'Cardinal' 70, and the 'Victoire' 140. The two last sailed from St Malo on February 24, 1627 under the command of Du Rossey. The passage was long, the provisions both bad and insufficient, and the mortality terrible. When the 'Cardinal' arrived at the Pointe de Sable of St Christopher on May 8, only 16 of her 70 souls remained alive, and these were sick. In the other ships, also, "most of the people died on the passage out."

The English experience can hardly have been so bad as that. When the French colonists landed, they found four hundred Englishmen settled near the chief anchorage, hale and strong and well stocked with provisions, having lately come out under Lord Carlisle's patent. Cordial to each other at first, the two nationalities soon fell out. The French had rather the worst of it, having lost many of their number by sickness, while the English kept their health. Help came to the former from home, and a victory over the English is claimed for them. But they had also a Spanish fleet to reckon with, and eventually the French colony fell into disorder and escaped to Antigua, while its leader, Du Rossey, went home to France and was thrown into the Bastille by Richelieu, one of the largest shareholders. The refugees to Antigua soon returned to St Christopher, again suffered from famine, and had the mortification of seeing all the profits of their monopoly swallowed up by unlicensed Dutch traders. In 1635 they obtained a new charter; at the same time a fortunate capture of a ship-load of negroes from

the Spaniards gave them a supply of labour so that "the island began to change its face." English usurpation was kept within limits, and the French colony grew daily, by addition of European settlers and of "Moorish slaves whom the French and Dutch ships go to buy in Guinea, or capture from the Spaniards along the coasts of Brazil." The French on St Christopher were now strong enough to send branch colonies to Guadeloupe and Martinique (1635). It was then the turn of the English to have disastrous sickness among their immigrants. Sir Thomas Warner, who had planted the English colonies in Barbados and St Christopher, and was now governor of the latter, went to England in 1636 to bring over new settlers. On his arrival out on 10 September, he wrote home that one of his two ships, the 'Plough,' was given up for lost, and that in his own ship there had been "great sickness and mortality, not 20 out of 200 having escaped and 40 having died, some near to him in blood and many of especial quality and use."

Meanwhile Barbados had been the chief scene of English enterprise, from a date (1624–26) almost the same as that of the joint occupation of St Christopher by French and English. Its earliest annals contain little else than the accounts of rivalries under Lord Carlisle's patent and other patents. So far as regards sickness, the annals were probably uneventful. In 1643 the island had plantations stocked with no fewer than 6400 negro slaves, and its prosperity advanced so steadily, that by the year 1666, the slaves in the island numbered some 50,000: "The buildings in 1643 were mean; but in 1666 [when Bridgetown was burned], plate, jewels and household stuff were estimated at £500,000[1]." It is a date intermediate between those two that directly concerns us—the year 1647. In that year, Ligon, the historian of the colony, arrived out from England about the beginning of September[2]. The ship in which he came to Barbados was consigned thence to Cutchew, on the African coast, to trade for negroes. On their arrival they found twenty-two good ships at anchor in Carlisle Bay (Bridgetown), a brisk trade going on, and plantations visible all along the shore. A

[1] *Cal. S. P.* Amer. & W. I., II. 529.

[2] Ligon, *Hist. of Barbadoes.* London, 1657.

plantation of 500 acres had 96 negroes and 28 Christians; some plantations contained 10,000 acres. The population was difficult to estimate, so many ships were arriving with passengers daily; and Ligon's estimate of 50,000, "besides negroes," is doubtless too much. About one hundred sail visit the island every year; they bring "servants" and negro slaves, both men and women. The servants are bound for five years, and are worse treated than the negroes. The negroes are more than double the number of the Christians; they come from different parts of Africa—Bonny, Cutchew, Angola and Gambia—and do not understand each other's language. They are bought out of the ship naked, being chosen as horses are in a market, the strongest, youthfullest and most beautiful yielding the highest price (man £30, woman £25 to £27, children at easier rates).

We have to note, also, Ligon's account of the colony's chief harbour—Bridgetown. The whole of Carlisle Bay is environed by high ground. Bridgetown is so-called "for that a long bridge was made at first over a little nook of the sea, which was rather a bog than sea." The stream which discharges there into the bay is like a lake for want of outfall. The spring tides fill it, but during the neap tides the salt water is kept stagnant behind the sea-banks, making a small lagoon. The spring tides seldom rise above four or five feet, but high enough to flow over the low ground in front of the houses, making the flat a kind of bog, which vents out a loathsome savour.

Ligon landed at Bridgetown about the beginning of September, 1647, in time to witness the ravages of a deadly epidemic:

"Yet, notwithstanding all this appearance of trade, the inhabitants of the island, and shipping too, were so grievously visited with the plague (or as killing a disease) that before a month was expired after our arrival, the living were hardly able to bury the dead. Whether it was brought thither by shipping, (for in long voyages diseases grow at sea and take away many passengers, and these diseases prove contagious), or by the distemper of the people of the island"—he leaves uncertain. For one woman that died, there were ten men. The ships at anchor in Carlisle Bay were, for the most part, infected with this disease.

What was the disease? How came it there? What sort of origin did its characters, symptoms, or type suggest? On

these questions we have some light thrown by other writings besides Ligon's, relating to the same epidemic.

John Winthrop, the Governor of Massachusetts, writes in his journal, under the year 1647[1]:

"It pleased the Lord to open to us a trade with Barbados and other islands in the West Indies, which as it proved gainful, so the commodities we had in exchange there for our cattle and provisions, as sugar, cotton, tobacco and indigo, were a good help to discharge our engagements in England. And this summer there was so great a drouth as their potatoes and corn, etc. were burnt up; and divers London ships which rode there were so short of provisions as, if our vessels had not supplied them, they could not have returned home....After the great dearth of victuals in these islands followed presently a great mortality (whether it were the plague, or pestilent fever, it killed in three days), that in Barbados there died six thousand, and in Christophers, of English and French, near as many, and in other islands proportionable."

The mention of the French on St Christopher brings us to the third source of information, the Jesuit father Dutertre, who was an eye-witness[2]:

"During this same year, 1648, the plague (*la peste*), hitherto unknown in the islands since they were inhabited by the French, was brought thither by certain ships. It began in St Christopher, and in the eighteen months that it lasted, it carried off nearly one-third of the inhabitants." This plague, or *peste*, was marked by violent pain in the head, general debility of all the muscles, and continual vomiting. It was contagious. A ship, the 'Bœuf' of Rochelle, carried it to Guadeloupe, the sailors and passengers dying on board of her. A priest went on board to administer the sacraments, and caught the infection; he recovered, but [had a relapse and] died on August 4. It was contagious at Guadeloupe also, and lasted twenty months.

This testimony of Dutertre is important for several things. He had arrived at Guadeloupe in 1640 in a small vessel of 100 to 120 tons, crowded with stores and carrying besides, 200 souls of both sexes and all ages. Much distress and sickness followed their arrival; he mentions nearly 100 sick in the quarters of M. de la Vernade, with only the ground to sleep on; more than three-fourths of the help for the struggling colony that arrived from St Christopher died, perhaps by infectious disease bred by

[1] Winthrop's *Journal*, II. 312.

[2] Dutertre, *Hist. gen. des Antilles habitées par les François*. 4 vols. Paris, 1667-1671.

the others. Now, with that personal experience in his mind, and with personal experience also of the epidemic of 1647–8, he describes the latter as a pestilence "hitherto unknown in the islands since they were inhabited by the French." Like Ligon and Winthrop, he is led to think of plague itself by the rapidity and fatality of the infection; but he mentions no signs of plague proper, and at the same time mentions continual vomiting. The disease was, in short, the Yellow Fever; and the epidemic in the end of 1647 at Bridgetown, and shortly after at St Christopher and Guadeloupe, was the first of it, so far as is known, in the West Indies.

But what then were the earlier epidemics spoken of by Dutertre? The branch colony to Guadeloupe from St Christopher in 1635 had been only two months in their new home, when, in September, their experiences of famine began. The famine or scarcity, says Dutertre, continued for five years, and was followed by "a mortality almost general." It was part of that mortality which Dutertre himself saw on his arrival at Guadeloupe in 1640. He calls the fever *coup de barre*—a name which in the sequel was sometimes given to yellow fever; and he mentions symptoms which agree, in part at least, with those of yellow fever—violent pains in the head, throbbing of the temporal arteries, great distress of breathing, lassitude, pains in the calf of the legs, as if they had been struck by a *coup de barre*. But in speaking of the sickness which he found prevalent on landing in 1640, he does not mention the irrepressible vomiting, which he puts in the first place when he describes the other fever of 1647–8; and, to repeat, he says that the latter was a pestilence hitherto unknown since the occupation of the French Antilles, and as fatal as the plague. It is tolerably certain, therefore, that the sickness on Guadeloupe sometime between 1635 and 1640, was of the usual kind incidental to the settlement of a new colony. We have had to notice it in Virginia ("from pestilent ships," the governor thought), in St Christopher, and in other new settlements. In a petition of the Governor and Company of the Somers Islands, July 28, 1639, it is said that about one hundred and thirty of their colonists had transplanted themselves last year to St Lucia, where they suffered so much

from sickness that not one was in health[1]. Any one of those epidemics among new settlers might be diagnosed yellow fever with as much warrant as another; but the deadly infection of 1647–8 was something special, different from all that had preceded, and to be accounted the first appearance of yellow fever whether in the West Indies or anywhere else[2].

Yellow fever received much elucidation in after years, both as regards its symptoms and pathology, and as regards its circumstances and causation. To get a familiar view of what the disease was like, let us take the following graphic case recorded by Moseley at Jamaica more than a century after the date with which we are still engaged[3]:

"The last patient I saw, in the last stage of the yellow fever, was Captain Mawhood of the 85th regt. at Port Royal, in Jamaica on the 24th Sept., 1780. It was on the fourth day of his illness. He had been in the island seven weeks.

I arrived at the lodgings of this much esteemed young man about four hours before his death. When I entered the room, he was vomiting a black, muddy cruor; and was bleeding at the nose. A bloody ichor was oozing from the corners of his eyes, and from his mouth and gums. His face was besmeared with blood; and with the dulness of his eyes, it presented a most distressing contrast to his natural visage. His abdomen was swelled, and inflated prodigiously. His body was all over of a deep yellow, interspersed with livid spots. His hands and feet were of a livid hue. Every part of him was cold excepting about his heart. He had a deep, strong hiccup, but neither delirium nor coma; and was at my first seeing him, as I thought, in his perfect senses. He looked at the changed appearance of his skin, and expressed, though he could not speak, by his sad countenance, that he knew life was soon to yield up her citadel, now abandoning the rest of his body. Exhausted with vomiting, he at last was suffocated with the blood he was endeavouring to bring up, and expired."

One of the best summaries of its symptoms is that given by the Rev. Griffith Hughes, rector of one of the Barbados parishes[4]:

[1] *Cal. State Papers*, Amer. and W. I., 1. 301.

[2] The chronology of yellow-fever epidemics in Hirsch (1. 318) is made to begin with Guadeloupe, 1635 and 1640, on the authority of Dutertre (as above), the epidemic of 1647 at Bridgetown being the third in order.

[3] Benjamin Moseley, M.D., *Treatise on Tropical Diseases, and on the Climate of the West Indies*, 3rd ed. (1803), p. 476.

[4] Hughes, *The Natural History of Barbados*. London, 1750, p. 37.

"The attack begins with a feeling of chill lasting an hour or two. Then violent fever comes on, with excessive pain in the head, back, and limbs, loss of strength, great dejection of spirits, insatiable thirst, restlessness, sometimes vomiting, redness of the eyes, and that redness in a few days turning to yellow. If the patient turn yellow soon, he has scarce a chance for life, and, the sooner he does, the worse. After some days the pain in the head abates, as well as the fever. A sweat breaks out, and the patient appears to be better; but on a narrow view a yellowness appears in his eyes and skin, and he becomes visibly worse. About this time he sometimes spits blood, and that by mouthfuls; as this continues, he grows cold and his pulse abates till at last it is quite gone, and the patient becomes almost as cold as a stone, and continues in that state with a composed sedate mind. In this condition he may perhaps live twelve hours, without any sensible pulse or heat, and then expire. Such were the symptoms and progress of this fever in the year 1715." He adds that the hæmorrhage was sometimes from the nose or rectum. "A loose tooth being drawn from a person who had the fever very severely, there issued out from the hole a great quantity of black stinking blood, which still kept oozing till the third day, on which the patient died in great agonies and convulsions." The symptoms were not uniform in all, nor in every visitation. It was most commonly rife and fatal in May, June, July and August, and then mostly among strangers, though a great many of the inhabitants died of it in 1696 and a great many at different periods since. (The next Barbados epidemic after 1647 was in 1671.)

Now, of that remarkable disease, a pestilent fever with hæmorrhages, having a final stage of collapse not unlike the algid termination of cholera, and a mortality equalled only by that of plague itself, or, in after times, by that of cholera, it will be difficult to find instances in any part of the world previous to the Barbados, St Christopher, and Guadeloupe epidemics of 1647—48. Not only so, but these and other West Indian harbours were the distinctive seats of it for long after. From first to last yellow fever has been an infection of certain harbours—of the shipping anchored, moored, or careened in them, and of the houses nearest to the shore. In the Barbados epidemic of 1647, Ligon says, the ships at anchor in Carlisle Bay were for the most part infected; Dutertre says that the crew and passengers died of it on board the ship which brought it to Guadeloupe; he says, also, that it had come to St Christopher with certain ships; and Ligon clearly suspects that it may have had an origin on board ship: "for in long voyages diseases grow at sea and take away many passengers, and these diseases

prove contagious." We have had many instances of the sicknesses of voyages, not only scurvy but also fevers. But these ship-fevers were not yellow fever; we know more of them in later periods of the history, when they were recognized as ship-typhus. For yellow fever we must seek something more distinctive, and that distinctive thing we shall probably find in a kind of voyage which we have not hitherto considered from the point of view of its sicknesses—the Middle Passage, or the voyage with negroes from the African coast across the tropical belt to one part or another of the New World. Let us then take that particular kind of voyage, as we have already taken the voyages of the East India Company's ships, the voyages of emigrant ships from England to the North-American Colonies, and those from France and England to the West Indies.

Dutertre, our authority for the first yellow fever in St Christopher, is also a witness to the sicknesses and mortality of the Middle Passage. Of the negroes, he says, more die on the passage than land. He has known captains who have taken on board up to 700 in one ship and landed only 200; they died of misery and hunger, and the stifling monotony of tropical calms. Some of the slaves are of high degree; there was one negress, in particular, whom all the rest looked up to as a princess.

The African slave-trade was not altogether so reputable as to have had the incidents of the voyages recorded with anything approaching to scientific fulness. But within the period that now occupies us, there are four notices of arrivals of slavers in the West Indies from Guinea, in which the health of the voyage had called for remark[1]. In a letter from Barbados, March 20, 1664, it is said that the 'Speedwell' has arrived with 282 negroes, who have greatly lost in value owing to smallpox breaking out amongst them; the 'Success' brought 193 blacks; the 'Susan' 230, which were not allowed to be landed until the officers of the ship had proved that they had not collected them within the Royal African Company's limits. Another Barbados letter of March 31, 1664, says that "there has been a great mortality amongst the negroes [? on St Christopher and Nevis] which the African Company's physician at Barbados, De La Rouse, assures

[1] *Cal. S. P.* Amer. and W. I., under the dates.

them is through a malignant distemper contracted, they think, through so many sick and decaying negroes being thronged together, and perhaps furthered by the smallpox in Captain Carteret's ships. Most men refused to receive any of them, and Philip Fusseires, a surgeon, to whom they sold twenty at a low rate, lost every one." This is a confused letter, but the reference to "sick and decaying negroes thronged together," appears to mean, not a sharp sickness soon over, but a general sickly state and loss of condition, which had come upon them during the voyage[1]. The third letter is from Barbados, June 25, 1667: from Guinea are arrived four ships, two of the African Company's, and two private; in which had happened a great mortality of negroes and of the ships' companies. Once more, to bring out the long imprisonment of negroes under decks while the slaver was filling up on the coast, T. Barrett writing from Port Royal on October 17, 1672, to James Littleton, "has heard that Capt. James Tallers bought the negroes for Littleton from another ship in Guinea which had them three months aboard, and that they were almost all starved and surfeycatted [surfeit had come to mean dysentery], he having fed them with little else but musty corn. There must have been something extraordinary that so many of them died."

In one of the letters we hear of sickness and mortality not only of slaves on the passage but also of the ships' companies. Long after, Clarkson showed from the muster-rolls of Liverpool slave-ships that the slave-trade, instead of being a "nursery" of British sailors, was their grave[2]. There are, however, few medical

[1] In Sir John Hawkins' second voyage as a slaver (1565), he was allowed to trade on the Spanish Main only for his "lean negroes," which were within the purchasing means of the poorer Spaniards. The voyage had been tedious, and the supply of water short "for so great a company of negroes.....Many never thought to have reached to the Indies without great death of negroes and of themselves; but the Almighty God, who never suffereth His Elect to perish," etc. Hakluyt, III. 501.

[2] Clarkson, *History of the Abolition of the African Slave Trade.* New ed., Lond. 1839, pp. 307, 352. He showed his prepared document to Pitt:—

"Mr Pitt turned over leaf after leaf, in which the copies of the muster-rolls were contained, with great patience; and when he had looked over about a hundred pages accurately, and found the name of every seaman inserted, his former abode or service, the time of his entry, and what had become of him, either by death, discharge, or

particulars; doubtless many of the deaths among the crews occurred on the coast, from fever, dysentery and the like brought on by debauchery and during trading excursions up the rivers in the long-boat; but from the third of the letters quoted it appears that there had been also deaths on the voyage. Of the sicknesses among the negroes, more is said of smallpox than of any other malady in the foregoing records. But smallpox was not in ordinary circumstances a very fatal or very severe disease among negroes, although it was very common. An early medical writer on the diseases of the Guinea Coast, both of white men and negroes, Dr Aubrey, "who resided many years on the coast of Guinea," may pass as a credible witness in the matter, the more so as his book shows him to have been competent in his profession[1].

"Measles and smallpox," he says, "are no ways dangerous, nor so troublesome as in cold climates, neither are they so very sick e'er they come out, nor remains there any great sign of them after they recover. Abundance of these poor creatures are lost on board ships, to the great prejudice of the owners and scandal of the surgeon, merely through the surgeon's ignorance; because he knows not what they are afflicted with, but supposing it to be a fever, bleeds and purges or vomits them into an incurable diarrhœa, and in a very few days they become a feast for some hungry shark. When they are in the woods sick of these diseases, they take nothing but cold water, and suck oranges, and yet recover, as I myself have been an eye-witness many a time; and the grandy-men's children are treated no otherwise in their sickness, and are very well of the smallpox in less than half a moon," etc. It is conceivable, however, that smallpox left to itself would not have run so favourable a course in the hold of a slaver as in the native huts of the negroes. On board ship the subjects of smallpox died from a complication of diarrhœa; and, according to the same writer,

desertion, he expressed his surprise at the great pains which had been taken in this branch of the inquiry; and confessed, with some emotion, that his doubts were wholly removed with respect to the destructive nature of this employ." (p. 273.)

[1] T. Aubrey, M.D., *The Sea-Surgeon, or the Guinea Man's Vade Mecum.* London, 1729, p. 107.

diarrhœa or dysentery was the grand cause of mortality on the voyage, the most inveterate form of it, (according to his fixed belief), occurring in those who had been constitutionally affected by yaws: "This (the yawey flux) is the mortal disease that cuts off three parts in four of the negroes that are commonly lost on board ships." But the same writer reveals enough to let us understand the prevalence of flux as a primary malady. The food of the slaves on board ship, to say nothing of the regimen, was distasteful to them. They missed their palm oil and other accustomed articles of diet. They were fed, morning and evening, on pease, beans, and the like, mixed with "rotten salt herrings," with an occasional meal of salt beef or salt pork, and a stinted allowance of water.

"These are foods that very few of them will eat. Very often they are abused by sailors, who beat and kick them to that degree that sometimes they never recover; and then the surgeon is blamed for letting the slaves die, when they are murthered, partly by strokes and partly famished; for if they do not eat such salt things as are enough to destroy them, they must fast till supper; and then they lose their appetites, and perhaps fall sick, partly through fasting and partly with grief to see themselves so treated; and if once they take anything to heart, all the surgeon's art will never keep them alive; for they never eat anything by fair means or foul, because they choose rather to die than be ill-treated...When they are costive and griped [by the salt food], they stay betwixt decks and will eat nothing; but cry *yarry, yarry*, and perhaps creep under one of the platforms and hide themselves, and die there, and the surgeon can't think what is the meaning on't...I am very sensible that it is impossible to maintain the slaves on board, after one quits the Coast, without salt provisions; but then care might be taken to water the beef and pork ere it be boiled, and also to bring a cruce of palm-oil round the deck from mess to mess, and also pepper, and let everyone take as he pleaseth....Another principal cause of their destruction is forcing them into a tub of cold water every day, and pouring the water on their heads by buckets-full"—doubtless for the sake of cleanliness, although they were too ill to stand such washings.

Whatever else the negroes died of on the voyage from Guinea, they did not die of yellow fever: there is hardly another generality of pathology so well based as that Africans of pure blood have been found immune from that infection in all circumstances ashore or afloat—protected not by acclimatisation but by some strange privilege of their race. And yet we have to think of yellow fever as somehow related to the over-sea traffic

in negroes. Two instances from the later history will serve to bring the problem concretely before us. In 1815, a British transport, the 'Regalia,' was employed in carrying recruits from the West Coast of Africa to the black regiments in the West Indies. The health of the ship when on the African coast had been good; but on the voyage across with the newly-enlisted negroes, much sickness, chiefly dysenteric, occurred among the latter, whereupon yellow fever broke out with great malignancy, attacking all on board except the black soldiers, who were from first to last untouched by it. From such experiences as that, Sir Gilbert Blane formulated a somewhat vague doctrine that the causes which produced dysentery in the negro produced yellow fever in the white race. But it is more probable that the dysenteric matters of the negroes had themselves in turn bred an infection of yellow fever for the whites. To take another case: In 1795, after the capture of Martinique from the French, one of the frigates 'La Pique,' was manned by a British crew and sent to Barbados. On the voyage they rescued two hundred negroes from a ship which was about foundering. The negroes were confined in the hold of 'La Pique;' and in a short time yellow fever broke out among her English crew, killing one hundred and fifty of them, although it was not prevalent among the blacks at all. "Such a mixture of men," says Gillespie, "strangers to each other, has been often found to occasion sickness in ships; and, together with other causes, fatally operated here before the arrival of the ship at Barbados....This is a melancholy instance of the generation of a fatal epidemic on board ship at a time when the inhabitants of Barbados and the crews of the other ships in company remained free from any such disease[1]."

But such instances are comparatively rare, while epidemics of yellow fever on shore, or among the shipping in an anchorage, have been common. It is possible that the yellow fever experiences of the 'Regalia' and 'La Pique' had happened often to the white crews of slavers; we shall never know. What we do know is that the ports of debarkation of the slave-trade became

[1] Gillespie, *Obs. on the Diseases in H. M.'s Squadron on the Leeward Island Station in* 1794–6. Lond. 1800.

the endemic seats of yellow fever. The theory is that the matters productive of yellow fever were brought to the West Indian harbours, deposited there, left to ferment and accumulate, and so to taint the soil, the mud and the water as to become an enduring source of poisonous miasmata. The facts in support of that view are not far to seek.

Let us come back to the circumstances of Bridgetown, Barbados, when the yellow fever broke out first in 1647. A good many slavers had landed their cargoes at Bridgetown in the years preceding (in 1643 the island had at least 6400 negroes), and each of them had left behind a material quantity of the filth of the voyage, having probably been careened for the purpose of cleaning out and overhauling. There are traditions still extant that the cleaning of a slave-ship after a voyage from Africa was an exceptional task, to which Kroomen used to be set. Be that as it may, it needs only a little reflection to see that a crowd of some hundreds of negroes under gratings in the hold or 'tween decks of a brig or schooner, suffering at first from sickness of the sea and, as the voyage across the tropic belt progressed, from the more distressing flux, must have set all rules of cleanliness at defiance. The ship's bilges and ballast would be foul beyond measure: and it was just the contents of her bilges, with or without the ballast itself, that would be pumped out or thrown out when the ship was moored in the harbour or careened on the mud. At Bridgetown there were no plunging tides, such as we watch on our own shores, to carry the filth out to sea. The spring tides, says Ligon, rose only four or five feet; the flood tide carried the water over the banks into the lagoon, and the ebb carried it off; but at neap tides a quantity of water remained stagnant behind the sea-banks, according to the familiar experience in such circumstances. The flat shore, says Ligon, became "a kind of bog, which vents out so loathsome a savour as cannot but breed ill blood, and is (no doubt) the occasion of much sickness to those that live there." A brackish estuary, with an impeded outfall, will often smell badly, from rotting sea-wrack or other decomposing matters; but we have yet to learn that any so commonplace conditions can breed a deadly pestilence such as arose at Bridgetown

for the first time in the autumn of 1647. Carlisle Bay was doubtless a leeward harbour, with high land all round it and a sluggish ebb and flow of the tide, subject to calms and a scorching sun; but besides all that, the careenage at the head of the bay was the regular receptacle of the ordure of slave-ships year after year. Travellers and imaginative writers have sometimes pictured the bays and creeks of the islands and main of the Caribbean Sea as if the mere decay of tropical vegetation had made them pestilential[1]. Risk, of course, there is in such situations, but chiefly when men are exposed by turns to the noonday heat and the nocturnal chill. The ill repute of West Indian harbours, with their sweltering mud, mangrove swamps, and lazy tides, is a composite and confused idea. It is not so much Nature that has made them unwholesome, as man. Yellow fever, in particular, is not a miasm of remote and primeval bays or lagoons into which a boat's crew may come once and again; it is not a fever of any and every part of the coast of a tropical island; it is a fever of only a few inhabited spots on the wide shores of the globe; and those seats of it, so far as it has been steady or periodic in its prevalence, are all of them harbours distinguished at one time or another as the resort of slave-ships, and distinguished from many other ports of either Hemisphere in no other way. Everything in the subsequent history of yellow fever pointed to its being a poison lurking in the mud or even in the water of slave-ports, and in the soil of their fore-shores, wharves and houses along the beach. Miasmata rose from the ground in the latter situations, to taint the air of the town at certain seasons; the poison also entered the bilges of ships moored or careened in the harbour, and rose from the holds as a noxious vapour to infect the crews. The miasmata were deadly for the most part to new comers, especially to those from the colder latitudes, although acclimatised residents were not exempt in a time of epidemic; but there is very general agreement that they carried no risk for negroes of pure blood.

What was there special in the circumstances of 1647 to give rise to the first epidemic explosion of yellow fever? There was,

[1] For example, Mr R. L. Stevenson in a striking passage of *Treasure Island*.

in the first place, the accretion of the peculiar fermenting filth in the mud and soil, which had been going on for several years. Secondly, there was the brisk trade, as indicated by the large number of ships in the harbour, a great concourse of new arrivals having been often remarked in the later history as one of the conditions of an outbreak. But more particularly there were the peculiarities of the season: it was one of those seasons in which the regular rains of June and following months had failed. What we know on that head comes exclusively from Winthrop's 'Journal,' already quoted. There was so great a drouth, he says, that their potatoes, corn, &c., were burnt up; and after the "great dearth of victuals in these islands followed presently a great mortality." But the mortality was certainly not from famine, nor from the effects of famine. It was the parching drought that the epidemic really followed, and not merely the scarcity, which was, indeed, relieved by the ships from New England, and was so little felt that Ligon does not mention it. The rainy season missed, or all but missed, in a tropical country means a great fall of the ground water; it means the pores of the ground filled with air to an unusual extent; and that is a state of any soil, if it be already full of fermenting organic matters, which breeds the most dangerous half-products of decomposition, or, in other words, the most poisonous miasmata. There needs always some such special determining thing to explain the epidemic outbursts of yellow fever; in the later history we shall see that the first great epidemic of it at Jamaica followed immediately upon the earthquake that destroyed Port Royal.

Illustrations of the ordinary principle that seasonal and periodic infection is dependent on the state of the ground water, are given at greater length in the chapters upon the later epidemics of plague in London. What applies in that respect to one soil-poison applies to another; and it will be shown in the proper place to apply with least ambiguity of all to Asiatic cholera, as well as to typhoid fever. Yellow fever is, in clinical characters, allied more to typhus than to typhoid; but it is a typhus of the soil, whereas the common and much less fatal typhus of ordinary domestic life in colder latitudes is an infec-

tion above ground—of the air, walls, floors and furnishings of rooms. There is the same relation between yellow fever and ordinary typhus in that respect, as between plague and ordinary typhus. When ordinary typhus has passed into a soil-poison, by aggravation of conditions, as in the experience of Arab encampments in North Africa, it has become at the same time bubonic fever, or, approximately plague proper. Yellow fever had its habitat essentially in the soil, from the peculiar circumstances (importation of the crude materials of it by ships engaged in the slave-trade); and plague in ordinary, or in European experience, had also its habitat in the soil, from circumstances which have been elsewhere given as its probable conditions.

It is perhaps because they are soil-poisons that those two diseases rank so high in their fatality and quickness of execution, in which respects they resemble Asiatic cholera, and differ from most other infections. Winthrop says that the first yellow fever killed in three days, and was therefore comparable to the plague. Ligon says that it was as killing a disease as the plague (of which both he and Winthrop would have had old experience at home), and he uses the stock phrase, that the living were hardly able to bury the dead. Winthrop says that 6000 died in Barbados: and one of his correspondents in the island, Vines, writes that "in our parish there were buried twenty in a week, and many weeks together fifteen or sixteen." Dutertre says that nearly a third of the colonists of St Christopher died of it, and that it lingered there for eighteen months, and for twenty months in Guadeloupe, whither it was believed to have been brought in the ship 'Le Bœuf.'

Barbados, St Christopher and Guadeloupe (with minor settlements on Martinique, Nevis, &c.) were the earliest English and French colonies in the Caribbean Sea. The Spaniards had occupied the Greater Antilles (Hispaniola or San Domingo, Cuba, Porto Rico and Jamaica) long before. Nothing particular is known of the health of these colonies except for the earlier years of the 16th century, when the native populations were ravaged by the great pox and the smallpox. But when Jamaica was seized from the Spaniards by the army of the

Commonwealth in 1655 we begin to have authentic information, the state of health being perhaps the most prominent thing (although little noticed by historians) in the despatches. That incident in the expansion of England, relating as it does to the planting of what was for long our greatest island colony, and illustrating the risks of those early enterprises more fully than any other of the kind, may fitly come into this chapter and conclude it.

The Great Mortality in the occupying of Jamaica.

The Lord Protector's design in the year 1654, to acquire one or more of the Spanish Antilles for an English colony, was more methodically conceived and more strenuously supported by the resources of the State than any previous attempt at colonization. It was attended with disasters on a proportionate scale, and at first with ignominy and failure which must have added seriously to the burden of Cromwell's later years. The original design, in the admiral's sealed orders, was to seize upon the old Spanish colony of Hispaniola or San Domingo[1]. A fleet had been fitted out at Portsmouth, which sailed on 19th—21st December, 1654, carrying a land force of three thousand men. After a favourable voyage, the fleet of thirty sail, half of them victuallers, arrived at Barbados on February 1, where they lay until March 31, engaging settlers for the proposed new colony as well as campaigners, including a troop of cavalry, from the not very choice class of English subjects in that island. Some twenty Dutch ships were seized and made victuallers or transports. The expedition received a draft also from Nevis, and calling at St Christopher they took up 1300 more, making in all an addition of over 5000 colonial men, besides women and children, to their original force. On April 13 the fleet arrived off the harbour of St Domingo. It came out afterwards that the sight of so many English frigates and other ships had driven the townspeople to instantaneous flight, so that the capital would have fallen to the English

[1] Thurloe's *State Papers*, III. IV. and V.; *Harl. Miscell.* III. 513; Long's *History of Jamaica*, 3 vols. London, 1774; *Cal. S. P.*, Amer. and W. I.

without a blow. But no landing was attempted in the harbour, owing to difficulties about piloting, ignorance of the depth of water, and the like. It was decided to disembark the force in a bay at the mouth of a river some six or ten miles (two leagues) to the eastward, where Drake had landed in 1586. Most of the ships, however, were carried past the appointed place, and came to anchor in another bay thirty miles (ten leagues) eastwards from St Domingo; there a multitude of some 7000 soldiers and colonials, with their women and children, were landed on the beach with three days' rations. Several of the ships landed their men at the original rendezvous two leagues from St Domingo, to the number of about 2000 in three regiments. The larger and farther-off force began to advance on St Domingo through dense woods; their presence in the country was soon known in all the plantations, whence the people fled to the capital for safety, so that the San Domingans were able to extemporise a considerable force for defence. The advance of the English was hindered by the stifling heat; distressed by thirst, they ate immoderately of oranges and other fruits, and in one way or another brought on dysentery. General Venables, in a despatch to Cromwell, says that by these causes they "were troubled with violent fluxes, hundreds of our men having dropped down by the way, some sick, others dead." Meanwhile the nearer and smaller force of some 2000 had advanced on St Domingo; they got over one of the two leagues between them and the capital, but an old fort, manned for the occasion, barred the way, and the regiments fell back upon the river whence they had started, and rested there five days, the main body having meanwhile come up with them. One attempt after another was made to pass the half-way fort, but the Spaniards held their ground, and actually inflicted defeat in the open and a disgraceful rout upon the English, some of whose gallant officers threw their lives away in a vain attempt to lead their men. All the while this broken and demoralised mob was without proper supplies from the fleet, the officers of which were either unable to communicate with the land force or indifferent as to their duty. The state of health on the 25th of April, some ten or twelve days after landing, is thus described in a letter: "And the rains nightly

pouring, with fogs and dews along the river, so soaked our bodies with flux, and none escaping that violence, that our freshment [by retreat to the river] proved a weakening instead of support." Another letter of two days' later date (April 27) says: "The rains increasing, our men weakening, all even to death fluxing, the seamen aboard neglecting,—that forced us to eat all our troop horses." An attempt was made to restore discipline; an officer of high rank was cashiered for a coward, his sword having been broken over his head; a soldier was shot for desertion; some loose women in men's clothes from Barbados were chastised, and a sharp look-out kept for other camp-followers of the kind. At length it was decided by Venables and his council that the attempt on San Domingo must be abandoned; probably it was seen that the Barbadian and St Christopher following was a fatal encumbrance at that stage, the more so as the rainy season was in progress. By the third of May the whole expedition was re-embarked, the Spaniards making no attempt to harass the operation. The number reshipped is said to have been seventeen hundred short of that which landed three weeks before: a good many had fallen fighting, others were slain by the Spaniards or negroes in the woods, and some appear to have died of the flux. The attempt on St Domingo having failed it was decided to make a descent on Jamaica, the least important of the Spanish Antilles. On the passage thither, Winslow, one of the three lay commissioners or "politicals" with the expedition, died "very suddenly of a fever."

On May 10 the ships entered the bay of Caguya. Admiral Penn, being resolved not to repeat the mistake they had made at St Domingo, kept sail on the 'Martin' galley until she was beached under the small fort of the Passage, at the head of the bay, so as to cover the debarkation with his guns. However, the few Spaniards living at the shore fled, and the whole force, to the number of some 7000, was landed by midnight. Venables then returned to his ship for his usual repose, leaving the men under arms all night. Not until nine next day, by which hour the cool of the morning was lost, did the march begin to the capital, St Jago de la Vega ("St James of the Plain"), situated on an elevation by the river Cobre, in the midst of an alluvial

plain with an amphitheatre of hills behind it, some six miles from the place of landing. About two in the afternoon they came before the town, and marched in that night: they found it empty, "nothing but bare walls, bedsteads, chairs and cow-hides." The town is said to have had some 1700 houses (too many for its population), two churches, two chapels, and an abbey; there all the Spaniards dwelt in ease and indolence, "having their slaves at their several small plantations, who constantly brought them store of provisions and fruits." In this great island there were but about 3000 inhabitants, half of them, if not more, being slaves. There were no manufactures or native commodities, except a very little sugar and cocoa. The four ships that came thither in a year traded generally for hides and tallow only.

The Spanish colony had removed as much of their property as they could in their first flight, and shortly sent their head men with their governor, "an old decrepid seignior full of the French disease" carried by two bearers in a hammock, to treat for their re-entry into the town. Venables was afterwards much blamed for returning the politeness of the Spaniards; he received their presents of fresh provisions and fruit, accepted their promises of a steady supply for his men, and gave them the free run of their own houses for a week or so, by which time they are said to have carried off all their personal belongings of value. They objected to leave the island, saying that Jamaica was their home, and that they had no friends either in New Spain or in Old Spain. At length they left their old settlement, with the avowed purpose of embarking for Cuba from a bay on the same side to the west. There were divided counsels among the English as to the treatment of the Spaniards, and Colonel Bullard was sent towards the bay with a large force to intercept them in their flight. They had, however, given a false direction, and had in reality crossed the mountains northwards to the other side of the island, clearing the country as they went of cattle and produce of every kind. Some of them, including eight families of the upper class, at length found their way to Cuba, but the larger number remained on the north of the island, where they were overtaken by famine and pestilence before a few months, and nearly exterminated.

Their negroes took to the mountains, and became the maroons, famous in the later history of Jamaica.

In pursuing the Spaniards, the English troops went roaming over the country, destroying the hogs and cattle in mere wantonness, and leaving their carcases to putrefy. In a short time the multitude of English at St Jago de la Vega (Spanish Town) were on short rations, and before long "dogs and cats the best part of their diet." The stores from the ships had been left on the beach exposed to the weather, and soon turned mouldy, the men refusing to carry them, in the absence of waggons, over the six miles between the shore and the head-quarters. Two or three victuallers besides had arrived from England within a week or two of the first landing, but, for all that, the expedition was starving. Many of the men were suffering from the flux which they had contracted in St Domingo. Venables, in a private letter of May 25, or a fortnight after landing, gives the number of the sick at near 3000; in a despatch to Cromwell, of June 4, he says:

"The want we have been in hitherto of bread (we not being able to be suddenly supplied therewith out of the fleet, or our stores, through want of waggons and other conveniences for the transportation thereof), joined with the drinking of water, hath already cast both officers and soldiers into such violent fluxes that they look more like dead men crept out of their graves than persons living; and this so generally that we have not above two colonels in health, three majors, some seven field officers in all; besides many have been already swept away with this disease. We lost Mr Winslow very suddenly, in our sailing towards this island, of a fever."

On June 9 there was a general muster of the land forces, "whose number was found to be much diminished of late, not so much by any pestilential or violent disease, as for mere want of natural sustenance; which, in common reason, may seem strange that of all men soldiers should starve in a cook's shop, as the saying is[1]."

In a despatch of June 13, Venables says that "about 2000 are sick. Our men die daily, eating roots and fresh fish (when any food is got), without bread or very little." He was himself ill, having had the flux for five weeks. Admiral Penn (father of

[1] *Harl. Miscel. l.c.*

the founder of Pennsylvania) had resolved to go home with two-thirds of the ships, thinking that his services were no longer needed, and having been advised that he could be of more service to Cromwell in England. He sailed on June 21, leaving the frigates and the Dutch prizes, under Goodson; and Venables followed in four days, with the surviving "political," leaving the settlement in charge of Fortescue, who wrote home, "I am left to act without book."

Meanwhile Cromwell had got ready reinforcements, sparing no trouble or expense at home. The expedition in aid left Plymouth on July 11, 1655, under the command of Sedgwick, and arrived at Barbados on August 26–31, after a fine passage; they left again on September 7, having trimmed their casks and taken in water with other refreshments. This force was in the best of health until after leaving Barbados. Sedgwick writes:

"I think never so many ships sailed together with less trouble, grief or danger than we did; only God did in a little visit us between this [Jamaica] and Barbados with some sickness, I apprehend caused by some distemper taken there [? yellow fever]; in which visitation, I think, in the whole fleet we lost between 20 and 30 seamen and soldiers."

Finding the Spanish flag flying at San Domingo, they came on to Jamaica on October 1, and there found a calamitous state of things.

"For the army, I found them in as sad and deplorable and distracted condition as can be thought of: commanders, some left them, some dead, some sick, and some in indifferent health; the soldiery many dead, their carcases lying unburied in the highways and among bushes, to and again; many of them that were alive walked like ghosts or dead men, who, as I went through the town, lay groaning and crying out, Bread, for God's sake!"

Sedgwick brought with him in four victuallers a thousand tons of provisions, which he secured in a store built for the occasion on the beach. Among his troops was Colonel Humphry's regiment of 831 "lusty, healthful, gallant men, who encouraged the whole army." But now we begin to see that the sickness at St Jago de la Vega had become infective or pestilential. The new-comers, healthy and well found as they

were, began at once to sicken and to die. Of Humphry's regiment, on November 5:

"There are at this day 50 of them dead, whereof two captains, a lieutenant, and two ensigns, the colonel himself very weak, the lieutenant-colonel at death's door. Soldiers die daily, I believe 140 every week, and so have done ever since I came hither. It is strange to see lusty men, in appearance well, and in three or four days in the grave, snatched away in a moment with fevers, agues, fluxes and dropsies, a confluence of many diseases. We furnished the army now with 60 butts of Madeira wine, and to every regiment a butt of brandy, and a hogshead or two of sweet oil. Our soldiers have destroyed all sorts of fruits, and provisions and cattle. Nothing but ruin attends them wherever they go." On January 24, 1656, Sedgwick again writes to Thurloe: "Did you but see the faces of this poor small army with us, how like skeletons they look, it would move pity; and when I consider the thousands laid in the dust in such a way as God hath visited, my heart mourns. Here hath come down to us from many of the Windward Islands divers people with intentions of sitting down with us, but at their coming hither, either fall sick and die, or are so affrighted and dismayed as that, although to their much impoverishing, yet will not be persuaded to stay with us."

The men in the fleet were in better health; but among them also "some die and some are sick, in so much that we need a good recruit fully to man our ships as men-of-war." On the same date (January 24, 1656) Admiral Goodson, writing to Thurloe, estimates the surviving officers and men at 2600, besides women and children; and in another despatch of that date from Sedgwick and Goodson jointly to Cromwell it is stated:

"The numbers of the army are much lessened since our last letters [November 5]; the whole not extending to 3000, many of them sick and weak, the best and soundest much abated of their strength and vigor, and God goes on every day to shorten our number. We die daily, not less than fifty every week, which is much considering our small numbers."

As the season advanced the health of the troops on shore improved. A letter of March 12 says that the condition of the army is much mended; the soldiers are far more healthful, but much dejected and averse to the place. The fleet was in good spirits, and impatient for action; however, there was sickness also on board the ships; they had lost some fourscore men since the last despatch; and on April 30 the report is: "our seamen are indifferently well in health; yet some few are sick,

and God is daily shortening them, so that our fleet will want a recruit of men." Several of the frigates were wormeaten, and careened for repairs. Sickness is reported in the ships as late as October 10, 1656.

The sickness among all ranks had been so general and severe that it was hardly possible to find senior officers to undertake the government. Fortescue died in October, 1655, and was succeeded temporarily by D'Oyley and others, the sole government being at length given by Cromwell to Sedgwick, who died a few days after receiving his unwelcome commission. Brayne, transferred from Lochaber to Jamaica, also died, and it fell at length to D'Oyley, an effective person in whom all on the spot had confidence, to carry the colony through its troubles. Cromwell spared no effort at home. Immense quantities of provisions were shipped; planters, with their families, 'servants' and slaves, to the number of some 1700, were removed to Jamaica from Nevis, under Stokes, the governor of that island; the New Englanders were also encouraged to resort to the new colony; and a thousand or so of young men and marriageable young women were furnished from Ireland, together with pioneers, described as of a rougher kind, from Scotland. "And so at length," says Carlyle, "a West-Indian interest did take root; and bears spices and poisons, and other produce, to this day."

The sickness and mortality among the first English colonists of Jamaica gave the island a bad name, and must have added not a little to the confusion of ideas already existing as to the pestilent character of tropical climates[1]. The older sugar-colonies, such as Barbados, which saw in Jamaica a formidable competitor, would appear to have encouraged the notion that

[1] Sir Anthony Shirley touched at Jamaica in 1596, and reported, "we have not found in the Indies a more pleasant and wholesome place." Hakluyt, III. 601. Long (*History of Jamaica*, 1774, II. 221) states the case very fairly with reference to the unfortunate expedition of Venables in 1655: "The climate of the island has unjustly been accused by many writers on the subject, the one copying from the other, and represented as almost pestilential, without an examination into the real sources of this mortality, which being fairly stated, it will appear that the same men carrying the like thoughtless conduct and vices into any other uninhabited quarter of the globe, must infallibly have involved themselves in the like calamitous situation."

climates varied much, that of Jamaica being bad. Soon after the Restoration, Charles II. was urged to give back Jamaica to Spain, and is said to have seriously entertained that purpose. Among the state papers is a document, supposed to have been written in November, 1660, which sets forth the natural advantages of Jamaica, together with two sets of reasons why England should retain it[1]:

"The air here is more temperate than in any of the Caribee Islands, being more northerly and as sufferable hot as in many places...The winds here constantly all day blow easterly, so coolly that it renders any labour sufferable at midday...We find here is not such antipathy between the constitution of the English and the climate that sickness is not inevitable and contingent; for we have experimentally found that persons observing a good diet and using moderate exercise, enjoy a somewhat (?) measure of health. The said causes of the mortality of the Army at their first arrival were want of provisions, unwillingness to labour or exercise, and inexcusable discontent to be constrained to stay here. The diseases that strangers are most incident to are dropsies (occasioned often by evil diet and slothfulness), calentures (so frequently produced of surfeit), and fevers and agues, which, although very troublesome, are never mortal....Cagway [Port Royal] is the place where all the merchants reside, being the most healthy place in the island; whither resort all the men that frequent the Indies, which makes houses so dear that an ordinary house in this town is worth £40 or £60 per annum. There are about 200 houses there, all built by the English. About 50 houses have been built by the English at the fort of the Passage [at the head of the harbour and the nearest point to Spanish Town]; of the houses in the old capital, St Jago de la Vega, about 800 are ruinous. As to the number of English in the island, the relics of the six regiments do muster 2200, and it is probable that the planters, merchants, sailors and others may be as many."

The above statements about the healthiness of Jamaica in 1660 were repeated by Dr Trapham, in his work on the climate and diseases of the colony in 1678[2]. This earliest medical writer is, indeed, more optimist than those who followed him, as to contagious or infective sickness; there was no smallpox, or very rarely, saving sometimes brought from Guinea by negroes; and "no depopulating plague that ere I have heard of," saving a

[1] *MS. State Papers, Colonial* (Record Office), Vol. XIV. No. 57 (1660).

[2] Thomas Trapham, M.D., *Discourse of the State of Health in Jamaica.* Lond. 1679.

pestilential fever brought in by the victorious fleet returned from the signal Panama expedition in 1670. The experiences of yellow fever at Port Royal and Kingston were mostly, if not entirely, subsequent to these dates. But, as there had been yellow fever at Barbados, St Christopher, and Guadeloupe as early as 1647–48, it has been thought probable that the enormous mortality in Jamaica in 1655–56 was from the same endemic cause[1]. Undoubtedly the epidemic at Spanish Town became at length more than the dysentery which had been brought by some of the troops from San Domingo, or had been induced among others of them by bad food and water; it became a virulent specific infection, attacking the healthy and well-found reinforcements from England and the new arrivals from the Windward Islands, and destroying them quickly, "in three or four days." Fevers are specially named, as well as fluxes and dropsies; and the question arises whether the pestilential fever was not yellow fever.

There is certainly nothing said of the striking and ghastly symptoms of the *vomito negro*. Moreover the sickness was nearly all at the town of St Jago de la Vega, six miles from the bay, situated on a rising of the plain with a declivity to the Cobre river, a place which was only exceptionally the seat of yellow fever in after-experience. Thus Judge Long, the able historian of Jamaica, says[2]:

"After a series of hot, dry, and calm weather, eight days of continued rain succeeded in May, 1761. Spanish Town grew more sickly than ever I knew it, either before or since. From that period to August there were buried 29 white inhabitants, of whom 15 were soldiers. Their disorder had all the appearance of being the true yellow fever, and was supposed to have been communicated from some ship in Kingston harbour:"

—Kingston and Port Royal, or the ships moored near to them, being the common habitat of the disease, as in the corresponding circumstances at other West Indian islands.

But if the infective fever at Spanish Town in 1655—56 was almost certainly not yellow fever, it was probably allied to it in

[1] Moseley, *op. cit.* p. 421, without reasons given; followed by Hirsch. *Geog. and Hist. Pathol.* (English transl.), I. 318.

[2] *Hist. of Jamaica*, III. 615.

type. Dysentery had been almost universal; there was no care of the sick, and, so far as one hears, no medical attendance, no hospitals, no scavenging, no security taken to keep the water-supply pure—nothing, in short, of what is now called sanitation. Sedgwick, arriving on October 1, 1655, found even the dead unburied by the highways and among the bushes. The correlation between dysentery and pestilential fever is no new hypothesis: flux first and fever afterwards has been an experience both in sieges and in ordinary domestic famines on many occasions. The origin of the yellow fever at Barbados and elsewhere in 1647—8, which has been outlined in this chapter, is but a special application of the same principle, the dysenteric matters which represent the crude source of the infection having been brought in the bilges and ballast of slave-ships, thrown into the mud of almost tideless harbours, left to ferment amidst the heat and moisture of the shore, and so made into a soil-poison which, in due season, would give off emanations, fatal especially to new-comers. Port Royal and Kingston had full experience of that endemic influence in after-years, for the first time in 1692, after the earthquake and disturbance of soil which destroyed the former town and occasioned the building of the latter on the other side of the bay. By that time there had been slavers enough in the bay to bring all the ordure that the hypothesis requires. But, down to 1655, the Spaniards had traded only with hides and tallow in some four ships every year, and had the headquarters of their cultivation and stock-raising at the town in the plain some six miles from the shore. Four or five years after their expulsion we find the whole aspect of the port changed, according to the description already given. It does not appear that Cromwell looked forward to negro labour in his colony, although the Nevis planters brought their blacks with them. Charles II. had not been many months on the throne when James, earl of Marlborough, petitioned him to offer inducements to the Royal African Company to make Jamaica the staple for the sale of blacks, and to contract with that company for one hundred negroes to be delivered at the island[1]. Negroes did begin from that time to arrive in Jamaica, although Port Royal

[1] *Cal. S. P.* Amer. and W. I.

was at first rather a general centre of commerce and piracy than a slave-port like Bridgetown, perhaps because the Windward Islands were strong enough to keep their privileges undivided. As late as 1670 the negro slaves in Jamaica were reckoned at no more than 2500, not counting the old Spanish maroons[1]. On September 20 of that year, Sir Thomas Modyford, governor of Jamaica, sent to Secretary Arlington certain proposals for the improvement of the colony, of which the following bears upon our subject[2]:

"That they may have licence gratis or at moderate rates to trade for negroes in Africa. Did those honourable persons, which make that Royal [African] Company so glorious, but fall into considerations how much more it is his Majesty's interest to increase the number of his subjects than bullion of gold or silver (which by law all nations may import), they would not only freely consent to this proposal for us but for the whole nation and foreigners also. Mankind is the principal, gold the accessory: increase the first considerably, and the other must follow. Barbados had never risen to its late perfection had it not been lawful for Dutch, Hamburghers, and our whole nation, and any other, to bring and sell their blacks or any other servants in the colony's infancy."

The harbours of Port Royal and Kingston did, in the event, become the chief resort of slave-ships in the British West Indies, slaves having been landed there up to ten thousand in a year throughout the 18th century. They came also to be among the chief seats of yellow fever, and continued so until a recent date. The subsequent progress of yellow fever there, and in other West Indian harbours as well as in the ports of some of the North American colonies, is not the least important of the subjects that fall to the second period of this history.

[1] *Cal. S. P.* Amer. and W. I. 1669–74, § 144. [2] *Ibid.* § 264, III.

CHAPTER XII.

THE GREAT PLAGUE OF LONDON, AND THE LAST OF PLAGUE IN ENGLAND.

Literature of the Great Plague.

THE writings called forth directly by the London Plague of 1665 were hardly more numerous or of better quality than those of 1603 and 1625. At its beginning in June, or in August, there appeared a number of tracts by enterprising practitioners, containing a few commonplace remarks on causes and the like, and advertisements of nostrums—by G. Harvey, Kemp, Garrencieres ("Plague is one of the easiest diseases in the world to cure, if" etc.), and Gadbury, an astrologer. The directions drawn up by the College of Physicians in 1636, for the preservation of the sound and recovery of the sick were re-issued, and an excellent set of "cautionary rules" by H. Brooke was published by order of the mayor. The writings which contain accounts of the Great Plague fall under two periods—the years immediately following 1665, and the years 1720 to 1723 when there was a sudden revival of interest in the subject in London owing to the great plague of Marseilles in 1720. To the latter period belongs the most famous work on the plague of 1665, Defoe's *Journal of the Plague Year*, which embodied in a picturesque form the substance of various writings that preceded it, together with traditions known to Defoe. A brief account of those writings that preceded Defoe's in both periods will serve at the same time to show the sources of a great part of his information.

The weekly bills of mortality issued by Parish Clerks' Hall, which showed the number of deaths week by week in each of the one hundred and forty parishes of London, with a rough classification of the causes of death, were reprinted at the end of the year 1665 in a volume with the title *London's Dreadful Visitation*[1]. The bills thus collected in convenient form were made great use of by Defoe, and became, indeed, the backbone of his work. Next to them in importance, although it is not certain that Defoe used it, is a treatise on the medical aspects of the Great Plague, which has never had the fortune to be published. The author of it was William Boghurst, a young apothecary practising at the White Hart in St Giles's-in-the-Fields, who advertised in the *Intelligencer* on July 31, 1665, at the height of the plague in his parish, that he had treated forty, fifty or sixty patients in a day, that he was prepared to undertake the treatment of cases in the City, the suburbs, or the country, and that he had a water, a lozenge, and an electuary, as well as an antidote at eightpence an ounce[2].

After the epidemic was over he employed his spare half-hours in writing a book upon his experiences, "considering that none hath printed anything either since this plague, or that forty years since—which I something wonder at." He professes to have taken nothing from hearsay, or from books, or from the testimonies of others; he writes in English "for general readers and sale," and he had omitted many things "so as not to make the book too tedious and too dear to bie." The manuscript was completed for the press, with a title-page, at the foot of which is what appears to be a publisher's name (the surname now torn off); but it was never published, although the author lived until 1685. It is conceivable that the printed sheets, or the composed type, may have been destroyed in the fire of September, 1666, and the enterprise abandoned. The manuscript came into the possession of Sir Hans Sloane, and is

[1] With a preface by the Printer to the Reader, beginning "The reprinting of these sad sheets." Printed and are to be sold by E. Cotes, living in Aldersgate Street, printer to the said Company.

[2] The advertisement is cited in Brayley's edition of Defoe's *Journal of the Plague Year*. .

now in the British Museum[1]. It gives much fuller clinical details of the plague than any other English work, although in somewhat aphoristic form; and it may be allowed the character of originality which the author claims for it, except in some of the more systematic chapters showing the influence of Diemerbroek.

Another medical essay following the plague was that of Dr Hodges, of Watling Street, first written in English in 1666 (May 8) under the title *A Letter to a Person of Quality*[2], and expanded in 1671 into a Latin treatise[3]. Besides a few pages at the beginning, giving some general facts of the London outbreak (which Defoe used), it is mostly a systematic disquisition, although a few cases are interspersed. One other medical piece of 1666 (June 16) is known, by Dr George Thomson, of Duke's Place near Aldgate, a Paracelsist or chemical physician; it contains the account of a dissection of a plague-body, but is mostly occupied with a polemic against the Galenists, which the author carried on for a number of years in numerous other writings[4].

Descriptive pieces, in prose or verse, such as the plagues of 1603 and 1625 elicited, are entirely wanting for that of 1665. But there was the usual crop of religious and moral exercises to improve the occasion. These appear to have come mostly, if not exclusively, from Dissenters. "Many useful and pious treatises," says a Dissenter in 1721, "were published upon the occasion of the last visitation, as by Mr Zach. Crofton, Mr Shaw, Mr Doolittle, and others." But the only one that attained popularity, having gone through five editions at once, and been often reprinted, even as late as 1851, was *God's Terrible Voice in the City*[5], by the Rev. Thomas Vincent, of Christ Church,

[1] Sloane MS. no. 349. Λοιμογραφια, *or, An experimental Relation of the Plague, of what happened remarkable in the last Plague in the City of London*, etc. By William Boghurst, Apothecary in St Giles' in the Fields. London, 1666.

[2] Reprinted in *A Collection of very Valuable and Scarce Pieces relating to the last Plague in the year* 1665. London, 1721.

[3] Λοιμολογια. London, 1671. Translation by Quincy, 1720.

[4] Λοιμοτομια, *or, the Pest Anatomized.* By George Thomson, M.D. London, 1666.

[5] London, 1667.

Oxford, who had been ejected from his living of St Mary Magdalen, Milk Street, and was then a leader of Dissent. Vincent preached in several parish churches (deserted by their parsons) all through the plague, and ministered constantly among the sick. His book, which moralizes also upon the great fire of 1666, will be drawn upon in the sequel.

We come next to the revival of interest in the Great Plague of London, which was occasioned by the Marseilles epidemic in the summer of 1720, an event that alarmed Western Europe as if the old recurrences of plague were about to begin afresh after a long interval. In London, in 1721, several books were published upon the Marseilles plague itself; and the years from 1720 to 1722 saw a whole crop of writings,—new essays and reprints of old ones,—upon the last London plague of 1665. Among the books reprinted were Hodges' *Loimologia*, in an English translation by Quincy, his *Letter to a Person of Quality*, the *Necessary Directions* of the College of Physicians, the *Orders drawn up by the Lord Mayor and Aldermen of the City* (these three in 1721 in a *Collection of very Valuable and Scarce Pieces relating to the last Plague in* 1665), and Vincent's *God's Terrible Voice in the City*. The new medical books on the Great Plague were by Scarborough, Hancock and Browne.

When Defoe in 1722 wrote his *Journal of the Plague Year*, he had these recent reprints and original books convenient to his hand. He had to go back to 1665 for the collection of the weekly bills of mortality in the plague-year (in a volume called *London's Dreadful Visitation*), and he may have consulted Boghurst's manuscript, which was probably then in the possession of Sir Hans Sloane. But it is impossible to trace all his copious narrative of the Great Plague to these sources, even if we make due allowance for his legitimate construction of incidents out of the generalities of contemporary writers. It is possible that he may have had some unknown manuscript, less technical than Boghurst's, to draw from. At all events, he was a likely person to have had many stories of the plague in his memory. He was a child of four when the plague was in London, the son of a butcher named Foe in St Giles's, Cripplegate, which was one of the most severely visited parishes. The most graphic parts of

his *Journal* are those which contain such tales as he might have been told in boyhood concerning the plague in Cripplegate, the scene of them being carried round to Aldgate, opposite to the Butchers' Row (still there) in Whitechapel High Street. He must have had some testimony from which to construct the visit to Blackwall, the view of the shipping moored all up and down the Thames, and the other particulars of the river-side population in the plague-time. The rough experiences of the three Stepney men in the country near London are in the manner of *Robinson Crusoe*, and needed only a few hints from Dekker's stories, or from the writers of 1625. His account of the burials by the cart-load in plague-pits is also suggestive of Dekker. The somewhat meagre references by Hodges might have sufficed him for his frequent theme of the hardships and horrors of shut-up houses, even if he had not seen two other tracts, of 1665, on the same. The accounts of the Marseilles plague, one of the worst in history, would have kept him right in picturing that of London.

Whatever materials Defoe took from Hodges, Vincent, or the writers on other plagues, he enlarged them by his power of circumstantial construction into a narrative which must be accounted on the whole veracious. He based upon figures, whenever he could get them; he seems even to have sought among the archives of the City for accounts of monies distributed to the poor. He prints in full the orders of the Mayor and Aldermen, and professes to give the text of a formal resolution which they passed to remain at their posts throughout the crisis. His table of the number of plague-deaths in each of twenty-six towns or villages near London does not, indeed, agree with the figures in the parish registers, as the table on a later page will show; but it can hardly have been drawn up at a guess.

The best instance of Defoe's skilful use of authentic documents is his description of how the infection invaded one part of London after another from the western suburbs to the eastern, so that its intensity was nearly over in one place before it had begun in another. That is the most interesting epidemiological fact in the whole outbreak; and Defoe has done ample justice to it. Boghurst had stated it with equal clearness and emphasis in

his manuscript of 1666, which Defoe may or may not have seen[1]; however the latter deduced it afresh, and illustrated it by numerous tables from the bills of mortality, which showed the incidence of plague upon each of the one hundred and forty parishes from week to week.

Antecedents, Beginnings and Progress of the Plague of 1665.

When the London plague of 1665 had given indications that it would grow to be one of the great outbreaks of that infection, much was made, in the retrospect, of a single death from plague which had occurred towards the end of December, 1664, in a house in or near Long Acre. Connected with that case was one of those trivial chains of evidence which are so often produced as the easy solution of a difficult problem. A bale of silks had come to the house from Holland, and that bale of silks could be traced to the Levant; therefore the seeds of the great plague of London were imported Levantine seeds. This was pretty well for a city which had a continuous record of plague-infection in its soil ever since the Black Death of 1348. But credulity could ignore facts more recent than the history for three centuries. The death in Long Acre in December was a solitary one, and

[1] Among the crop of books brought up by the Plague of Marseilles, in 1720 (the immediate cause of Defoe's book also) was one by Richard Bradley, F.R.S., a writer upon botany, on *The Plague of Marseilles. Also Observations taken from an original Manuscript of a graduate physician, who resided in London during the whole time of the late plague, anno* 1665. London 1721 (and two more editions the same year). The title-page of this astute gentleman is of the catch-penny order. All that is said of the original manuscript occupies about the same number of lines in the text as in the title, and might have been extracted in the course of five minutes' research; it consists merely of a list of a few things supposed to be distinctive signs of plague—extraordinary inward heat, difficulty of breathing, pain and heaviness in the head, inclination to sleep, frequent vomiting, immoderate thirst, dryness of the tongue and palate, and then the risings, swellings, or buboes. Boghurst's third chapter is occupied with twenty-one such signs, and his fourth chapter with a hundred more signs and circumstances, in numbered paragraphs. It is possible that his was the manuscript out of which the botanist made capital in his title-page; but his meagre list of signs might have been got from almost any work on almost any febrile disorder, and is not sufficient to identify Boghurst by, although a word or phrase here and there is the same. However, Defoe would have seen Bradley's title-page, and might have inquired after the Sloane MS.

was of no more import for what followed than any of the five other sporadic plague-deaths in 1664[1]. Only one more death from plague occurred in the bills (in the middle of February), until the last week of April, 1665; even then the progress of the infection was slower for the next two months than it had been in many former seasons of moderate plague, such as the five years 1606—1610 and the eight years 1640—1647, or than it had been in the great plague-years of 1603, 1625 and 1636. An importation from abroad had been alleged as early as the great plague of 1563, namely from Havre, which was then held by an English garrison. But on that occasion the epidemic in London was gaining ground before the sickness at Havre had declared itself plague, and was of the bubonic type while the latter was still a malignant fever. The return of the whole English garrison from Havre, with the seeds of sickness among them, might well have introduced infection; but that return was not until the end of July, by which time the mortality in London had been progressing for two months. There is equally little reason for Stow's statement that the plague of 1603 was brought to London from Ostend, or for the corresponding theory of origin for the plague of 1625. A foreign source was not thought of unless the plague became one of the greater degree. Year after year in London there were a few cases of plague, and sometimes for a succession of years the plague-deaths kept steadily at a level of from one thousand to three thousand. There are, indeed, few years from 1348 to 1666 in which the infection did not declare its presence in London. Whether the few threatening cases in the spring were to rise to a plague of the greater degree depended upon a concurrence of circumstances—upon the interval since the last great plague, upon the number of strangers crowding to the capital, and upon the kind of weather preceding. In 1665 the various determining things did chance to come together, and a plague of the first degree ensued. The one singular thing in the history is that such a concurrence never happened again, or that the conditions had so far changed (certainly not for the

[1] Of the six plague-deaths in 1664, three were in Whitechapel parish, and one each in Aldgate, Cripplegate and St Giles's-in-the-Fields.

better), that the type of epidemic disease was no longer the bubo-plague.

According to precedent, a great plague was somewhat overdue in the year 1665. Its two great predecessors (not reckoning the smaller plague of 1636) had happened each at the beginning of a new reign—in 1603 on the accession of James I., and in 1625 on the accession of Charles I. The Restoration of 1660 was the time for the next great outburst; but that was delayed for five years. Those five years were occupied with a good deal of fever and other infective disease in London, and the fever in the beginning of 1665 was, according to Sydenham, of a marked pestilential type. It may be said to have led up to the plague; but the bubonic disease itself needed something in addition to the determining causes of spotted fever. It is generally admitted that London was unusually crowded with the poorer classes whose work is required by the luxury of the rich (Defoe says that an enumeration for the Lord Mayor had made out 100,000 ribbon-weavers in the eastern suburbs, although the number is incredible). There was also a general relaxation of morals, which may have predisposed many constitutions to receive the seeds of infection. Another element in the case was the weather.

The summer before had been remarkable for the immense number of house-flies, and of other insects and frogs. From November to the end of March the earth was held in almost continual black frost. Boghurst says the wind was westerly for seven months. No rain fell all the time except a slight sprinkling in the end of April. The dry cold continued after the frost broke, and produced, says Sydenham, an unusual number of cases of pleurisy, pneumonia and angina. Richard Baxter says of the seasons preceding the great plague, that they were "the driest winter, spring and summer that ever man alive knew, or our forefathers ever heard of; so that the grounds were burnt like the highways, the meadow ground where I lived [Acton] having but four loads of hay which before bare forty[1]." The hay crop was "pitiful," says Boghurst, in consequence of the long cold and drought. But the summer was made pleasant

[1] *Reliquiae Baxterianae*. London, 1696, I. 448. This entry in his journal is dated September 28, 1665, at Hampden, Bucks.

by refreshing breezes, and there was abundance of all kinds of grain, vegetables and fruit.

It was not until the beginning of June that the deaths from plague in all London, according to the bills of mortality, reached the sum of 43 in the week. But the mortality had been excessive from the beginning of the year, and it was suspected, as in the like circumstances in 1625, that the searchers had been concealing the existence of plague, or calling cases of it by other names, so as to save the infected houses from being shut up. The motive for bribery and concealment doubtless existed; it had been kept in view by the authorities from the first institution of searchers, who were solemnly sworn before the Dean of the Arches to make a true return of the cause of death. In all the great plagues, less so in 1563 and 1603 than in other years, there was reason to suppose that a large proportion of deaths put down to other causes than plague were really cases of plague. However there is no doubt that, in the early months of 1665, just as in the beginning of 1625, there was a great deal of spotted fever in London, not to mention smallpox and dysentery. The season was a sickly one, such a sickly season as often occurred in the latter part of the seventeenth century and throughout the whole of the eighteenth, when there could be no longer any question of plague. The weekly bills contain numerous deaths in the several parishes from "fever" and from "spotted fever" for months before they contain more than an occasional plague-death. There was no reason why these and other maladies should not have swelled the bills to three or four hundred in a week; in the year 1739, when London was probably not a third larger than in 1665, Strother says that fever brought the weekly bill up to near a thousand. It is remarkable, however, that Boghurst claims to have been treating cases of plague from the month of November, 1664; Hodges also says that he was called in the middle of the Christmas holidays to a young man in a fever who acquired, two days after, a plague-botch in each groin as large as a nutmeg, and recovered. Boghurst admits that "tokens," by which he means the marks of plague other than the botch or bubo, "appeared not much till about the middle of June, and carbuncles not till the latter end of July." He suspects that the

bills of mortality did not tell the whole truth; and, as an instance of evasion, he says that there had been plague in St Giles's, St Martin's, St Clement's, and St Paul's, Covent Garden, for three or four years before (the bills of mortality give only 12, 9, and 5 deaths respectively for all London in the years 1662, 1663 and 1664), "as I have been certainly informed by the people themselves that had it in their houses in those parishes."

But, in claiming an earlier beginning for the plague than the bills recognize, and in setting aside the diagnosis of fever as insufficient, Boghurst takes what is known, in the controversies upon the nature and affinities of plague, as the "ontological" view: that is to say, he sees in plague a fixed and uniform entity, and he sees the same in fever. The other view is the developmental, which recognizes transitions from the one type of pestilential disease into the other. The great writers of the time, Willis, Sydenham, and Morton, were none of them "ontologists." They all taught the scale of malignity, which had simple continued fever at one end, then a severer fever with spots and "parotids," then a fever with buboes, and at the farthest end of the scale the true plague, with its buboes, carbuncles, and tokens. Nor is it denied by competent observers, such as Boghurst himself, that an epidemic of plague declined as a whole in malignity towards the end, so that the buboes suppurated, and three out of four, or three out of five, patients recovered. If that were the case in the descent of the curve, why should there not have been something corresponding in the ascent? If certain cases of the prevailing fever in the beginning of the year developed buboes which suppurated (as in the case treated by Hodges at Christmas, 1664), should they be called plague or fever? Willis would have answered in favour of fever, until such time, at least, as the "epidemic constitution" of the season changed definitely to plague[1]; he does in effect answer so in the particular

[1] *Ed. cit.* Chap. XIV. p. 131:—"Diseases which seem to be nearest like its (plague's) nature; which chiefly are fevers, called pestilent and malignant; for 'tis commonly noted that fevers sometimes reign popularly, which for the vehemency of symptoms, the great slaughter of the sick, and the great force of contagion, scarce give place to the pestilence; which, however, because they imitate the type of

instance of the Oxford fever of 1643, which in some cases was bubonic, whereas, in 1645, he makes no doubt that the disease prevailing in Oxford and Wallingford was true plague.

The more general discussion of this theme will be found in the concluding section of the chapter on the Black Death, where illustrations are given of typhus fever turning to bubonic fever and to plague, from recent and anomalous outbreaks of plague in Arab villages or encampments, in some Indian villages, and elsewhere. The conclusion there come to was that the type of plague, or the bubonic type, prevailed when the infection of the filthy habitations began with change of season to rise from the soil, whereas the form of sickness was typhus fever so long as the infection was primarily in the atmosphere of the dwellings.

We may admit, then, that there was some ambiguity in the naming and classifying of pestilential cases in the early months of 1665. If we follow the bills—and there is nothing else to follow—the plague-deaths in all the parishes of London for the seven weeks from April 18 to June 6 were respectively no more than 2, 0, 9, 3, 14, 17 and 43, the deaths from "fever" and "spotted fever" being much more numerous.

Having thus far determined the date of beginning, we come next to the line of advance of the plague of 1665. It was from the western and northern suburbs towards the City, the eastern suburbs, and Southwark. Boghurst, who practised in St Giles's-in-the-Fields, says:

"The plague fell first upon the highest ground, for our parish is the highest ground about London, and the best air, and was first infected. Highgate, Hampstead and Acton also all shared in it." From the west end of the town, Boghurst continues, "it gradually insinuated and crept down Holborn and the Strand, and then into the City, and at last to the east end of the suburbs, so that it was half a year at the west end of the city [in his experience] before the east end and Stepney was infected, which was about the middle of July. Southwark, being the south suburb, was infected almost as soon as the west end." But the same writer farther explains that "it fell upon several places of the city and suburbs like rain—at the first at St Giles',

putrid fevers, and do not so certainly kill the sick as the plague, or so certainly infect others, they deserve the name, not of the plague, but by a more minute appellation of a pestilential fever."

St Martin's, Chancery-lane, Southwark, Houndsditch, and some places within the City, as at Proctor's-houses."

The slow progress from west to east has been made much of by Defoe, who used the bills of mortality to ascertain the rise of the infection in the several districts. His conclusion is the same in the main as Boghurst's contemporary observation; only that he makes the infection of Southwark later, and with reason so far as the bills show:—

"It was now mid-July, and the plague which had chiefly raged at the other end of the town, and as I said before, in the parishes of St Giles's, St Andrew's, Holbourn, and towards Westminster, began now to come eastward towards the part where I lived. It was to be observed, indeed, that it did not come straight on toward us; for the City, that is to say within the walls, was indifferent healthy still; nor was it got then very much over the water into Southwark; for though there died that week 1268 of all distempers, whereof it might be supposed above 900 died of the plague [only 725 in the bill], yet there was but 28 in the whole City within the walls, and but 19 in Southwark, Lambeth included; whereas in the parishes of St Giles' and St Martin's in the Fields alone, there died 421...We perceived, I say, the distemper to draw our way; viz. by the parishes of Clerkenwell, Cripplegate, Shoreditch, and Bishopsgate; which last two parishes joining to Aldgate, Whitechapel and Stepney, the infection came at length to spread its utmost rage and violence in those parts, even when it abated at the western parishes where it began. It was very strange to observe that in this particular week, from the 4th to the 13th July, when, as I have observed, there died near 400 of the plague in the two parishes of St Martin's and St Giles' in the Fields only, there died in the parish of Aldgate but four, in the parish of Whitechapel three, and in the parish of Stepney but one." In the following week of July, with a total of 1761 deaths, whereof of the plague 1089, only 16 occurred on the Southwark side. Soon, however, Cripplegate had the infection at its hottest, and at the same time Clerkenwell, St Sepulchre's parish, St Bride's and Aldersgate. "While it was in all these parishes, the City and the parishes of the Southwark side of the water, and all Stepney, Whitechapel, Aldgate, Wapping and Ratcliff were very little touched; so that people went about their business unconcerned, carried on their trades, kept open their shops, and conversed freely with one another in all the City, the east and north-east suburbs, and in Southwark, almost as if the plague had not been among us."

In another passage Defoe brings out the moral of its gradual advance. He had shown

"how it began at one end of the town, and proceeded gradually and slowly from one part to another; and like a dark cloud that passes over our

heads, which as it thickens and overcasts the air at one end, clears up at the other end: so while the plague went on raging from west to east, as it went forwards east it abated in the west, by which means those parts of the town which were not seized, or who were left, and where it had spent its fury were, as it were, spared to help and assist the other; whereas had the distemper spread itself all over the City and suburbs at once, raging in all places alike, as it has done since in some places abroad, the whole body of the people must have been overwhelmed" etc.

That is how Defoe constructs a concrete picture from the dry statistics of the weekly bills. He has defined the stages, and pointed the moral, with a firmer hand than the reality would most likely have warranted. But no scientific writer could have apprehended more correctly the general fact of a gradual invasion from the west end of the town.

These striking facts of the gradual advance of the Great Plague of London from west to east will be found to suit that theory of the plague-virus which has been illustrated in various parts of this volume. The virus of plague is a soil-poison, or the ground is its habitat; its quiescence or activity depends upon whether or not the state of the soil favours the fermentation of the special organic matters therein, which special organic matters we here take to be the products of cadaveric decomposition. The conclusion that the poison of plague lay in the soil, and that it rose into the air in emanations or effluvia, was forced upon all those who thought much about the matter from the medieval period onwards. Thus, the apothecary Boghurst, says in his first chapter: "And therefore my opinion falls in wholly with those who make the earth the seminary and seed-plot of these venomous vapours and pestiferous effluvia, which vitiate and corrupt the air, and consequently induce the pestilence." And again: "The plague is a most subtle, insinuating, venomous, deleterious exhalation, arising from the maturation of the ferment of the forces (?) of the earth, extracted into the air by the heat of the sun." It is true that Boghurst, like the sixteenth-century writers abroad, such as Ambroise Parè, locates the venom in mysterious cavities and bowels of the earth, and dwells upon the agency of earthquakes in setting it free. But he comes to more ordinary causes in his enumeration of favouring things—"dunghills, excrements,

dead bodies lying unburied, putrefying churchyards too full," and again "breaking up tombs and graves where dead bodies have been long buried." As telling against the last, however, he adds: "When the charnel-house at St Paul's was demolished, there was a thousand cart-loads of dead men's bones carried away to Finsbury, yet no plague followed it."

The activity of this soil-poison depends upon processes in the soil which go on so slowly that the link of cause and effect is easily overlooked. In the last resort, they are dependent on the rise and fall of the ground-water. It was observed beyond all doubt as the law in Lower Egypt, that the plague came forth annually after the Nile had begun to fall, and that it reached its height in the months of March, April and May, when the soil was driest, or the pores of the ground occupied solely by air after having been full of water. It was observed, also, that the plague-area and the inundation-area were co-extensive. Lower Egypt is, of course, somewhat peculiar (Lower Bengal coming near to it) in these regular alternations of air alone and water alone in the pores of the ground. But other countries have the same sharp contrast occasionally, and London had the contrast very decidedly in the years 1664 and 1665. The months from November 1664 to June 1665, some of which ought to have brought snow or rain to raise the wells and springs to their highest periodic water-mark early in the year, were quite remarkable for drought: Richard Baxter says that no one remembered the like. The ground-water, instead of rising all through the winter, must have fallen lower and lower as the spring and summer advanced. The pores of the ground had been occupied with air to an unusual depth of the subsoil, and the presence of air in these circumstances had given occasion to that ferment-activity in the special organic matters of an old-inhabited soil which produced the virus of plague. The stratum of subsoil would become dry first in the more elevated parts; and as the ground-water continued to fall, the air would reach in due course an unwonted stratum in the lower situations. Defoe says that they came to water at eighteen feet in digging the Whitechapel plague-pits. The same seasonal march of a soil-infection from the higher ground to the lower

has been observed in modern times in other cities, and in other diseases than plague. The drought for seven months from November to June would not, of itself, have caused a great plague. But it was an essential member of the co-operating group of things; and it probably determined of itself the season when the great plague was once more to come and take away the enormous increase of poor people.

Mortality and Incidents of the Great Plague.

The plague of 1665 was justly called the Great Plague, and is sometimes spoken of as "the plague of London," as if it were unique. But it was not much more severe than those of 1603 and 1625 had been for the London of their generation; and there had been many plagues when London was a small capital, such as those of 1407, 1479, 1500, 1513 and 1563, which had cut off as large a proportion (one-fifth to one-sixth) of the population. The inhabitants in 1665 were not far short of half a million, nearly twice as many as in 1603, and about a third more than in 1625. The increased mortality in 1665 was somewhat more than proportionate to the increase of inhabitants, as the following table shows:—

Year	Estimated population	Total deaths	Plague deaths	Highest mortality in a week	Worst week
1603	250,000	42,940	33,347	3385	25 Aug.—1 Sept.
1625	320,000	63,001	41,313	5205	11—18 Aug.
1665	460,000	97,306	68,596	8297	12—19 Sept.

Reckoned from the christenings and burials in the bills of Parish Clerks' Hall, the population in 1605 would have been 224,275, and in 1622, 272,207. But in those years (and until after 1636) certain of the newer parishes (known as the Seven Parishes), including Stepney and Westminster, kept separate bills, of which some figures for 1603 and 1625 are given at p. 477 and p. 511. The population of the Seven Parishes appears to have been about one-ninth of the whole metropolis in 1603, and about one-seventh in 1625, while Graunt, a contemporary, makes it one-fifth in 1662. These fractions have been added in

the table, so as to make 1603 and 1625 comparable with 1665. In 1603 and 1625, the highest mortality in a week does not show the deaths in those parishes (Westminster, Stepney &c.) which did not send their returns to the general bill until 1636, but their figures have been included in the totals for those years. It will be seen that the plague of 1665 fully kept pace with the increase of population. The old City within the walls had 15,207 deaths in the year from all causes. It had become crowded since the beginning of Elizabeth's reign by its gardens and church-yards being built upon, and its mansions turned into tenement-houses for a poorer class; and yet in 1563 the mortality from plague and other causes in the City and its Liberties, with a population hardly exceeding that of the City alone in 1665, was 20,372. The enormous total of 1665 was largely made up from the populous suburbs of Cripplegate, Whitechapel, Stepney, St Martin's in the Fields, St Giles's in the Fields, Southwark and Westminster, which would have contributed but little to the total down to the middle third of the sixteenth century.

The following tables will show the progress of the epidemic from week to week, the weekly deaths from all causes and from plague, and the incidence upon the several parts of London. The so-called ordinary deaths are much in excess of the average, and must have included many that were really cases of plague. Part of the excess, however, was due to the great prevalence of fever and spotted fever, which made a heavy mortality in the early months before the plague began. Bowel complaint also is credited with a good many deaths. The other more important items in the bills are consumption and infantile troubles. Boghurst, however, says: "Almost all other diseases turned into the plague. For five or six months together there was hardly any other disease seen but the plague and a few casualties, whatever the Bills say; and Thucydides says the same of the plague at Athens." As to the total of deaths in the year from all causes (97,306), Hodges thinks that it does not show the whole mortality. The largest number of burials in one week is 8297; but he thinks that 12,000 were buried in that week, and that 4000 were buried in one day and night. But there seems to be no reason to set aside the tally of the sextons to that extent; the

returns were made weekly from one hundred and forty parishes, and might easily have been exact to within a few in each.

Bill of Mortality of the Plague-year 1665 *in London.*

Week ending	Christ-ened	Buried	Plague	Week ending	Christ-ened	Buried	Plague
Dec. 27	229	291	1	June 27	199	684	267
Jan. 3	239	349	0	July 4	207	1006	470
10	235	394	0	11	197	1268	725
17	223	415	0	18	194	1761	1089
24	237	474	0	25	193	2785	1843
31	216	409	0	Aug. 1	215	3014	2010
Feb. 7	221	393	0	8	178	4030	2817
14	224	462	1	15	166	5319	3880
21	232	393	0	22	171	5568	4237
28	233	396	0	29	169	7496	6102
Mar. 7	236	441	0	Sept. 5	167	8252	6988
14	236	433	0	12	168	7690	6544
21	221	363	0	19	176	8297	7165
28	238	353	0	26	146	6460	5533
Apr. 4	242	344	0	Oct. 3	142	5720	4929
11	245	382	0	10	141	5068	4327
18	287	344	0	17	147	3219	2665
25	229	398	2	24	104	1806	1421
May 2	237	388	0	31	104	1388	1031
9	211	347	9	Nov. 7	95	1787	1414
16	227	353	3	14	113	1359	1050
23	231	385	14	21	108	905	652
30	229	400	17	28	112	544	333
June 6	234	405	43	Dec. 5	123	428	210
13	206	558	112	12	133	442	243
20	204	615	168	19	147	525	281
					9,967	97,306	68,596

Incidence on Parishes of the Plague in 1665.

Ninety-seven Parishes within the Walls.

	All deaths	Plague deaths
97 City parishes	15,207	9,877

(The parishes with heaviest mortalities were St Anne's, Blackfriars; Christ Church, Newgate; St Stephen's, Coleman St; St Martin's, Vintry; Allhallows Barking, the Great, and in-the-Wall; St Andrew's, Wardrobe).

Sixteen Parishes without the Walls and in the Liberties.

St Giles's, Cripplegate	8069	4838	St George's, Southwark	1613	1260
St Botolph's, Aldgate	4926	4051	St Botolph's, Aldersgate	997	755
St Olave's, Southwark	4793	2785	St Dunstan's in the West	958	665
St Sepulchre's	4509	2746	St Bartholomew the Great	493	344
St Saviour's, Southwark	4235	3446	St Thomas's, Southwark	475	371
St Andrew's, Holborn	3958	3103	Bridewell Precinct	230	179
St Botolph's, Bishopsgate	3464	2500	St Bartholomew the Less	193	139
St Bride's, Fleet Street	2111	1427	Trinity, Minories	168	123
			Pesthouse	159	

Twelve Out-parishes in Middlesex and Surrey.

Stepney	8598	6583	St Mary's, Newington	1272	1004
Whitechapel	4766	3855	St Katharine's, Tower	956	601
St Giles's in the Fields	4457	3216	Lambeth	798	537
St Leonard's, Shoreditch	2669	949	Islington	696	593
St Magdalen's, Bermondsey	1943	1362	Rotherhithe	304	210
St James's, Clerkenwell	1863	1377	Hackney	232	132

Five Parishes in the City and Liberties of Westminster.

St Martin's in the Fields	4804	2883	St Paul's, Covent Garden	408	281
St Margaret's	4710	3742	St Mary's, Savoy	303	198
St Clement's Danes	1969	1319			

Pesthouse 156

The Great Plague brought back all the familiar incidents of 1603 and 1625, and revealed no new feature. As before, all that could afford to do so made their escape at the outset. Sydenham, who fled with the rest, says that two-thirds of the population left; which may be true of the City proper, but certainly not of the populous Liberties and suburbs on both sides of the water, as Defoe points out. The poorer classes were left stranded, and bore the brunt of the calamity, as they had always done. Flight was, doubtless, the best step to take, the motive being to get "into clean air," as cardinal Wolsey expressed it in 1515. Those that were left behind knew that they were in bad air, and knew that it mattered little whether they came into contact with the sick or not[1]. Their employments and wages mostly ceased as the plague extended from suburb to suburb and to the City, so that with starvation on the one side and plague on the other, they held their lives cheaply and bore themselves with an unconcern which was strange to the rich. Their desperate case explains, as Defoe correctly saw, the ease with which the mayor could always get men to undertake for pay the disagreeable and risky work of day and night watchmen to the multitude of shut-up houses, of bearers of the dead, of buriers, of nurses, and distributors of the public charity. As soon as any fell in these humble ranks, others were willing to take their place; so that at no period of the

[1] In a letter from London, 9 May, 1637 (Gawdy MSS. at Norwich, *Hist. MSS. Commis.* x. pt. 2. p. 163) it is said: "There is a strange opinion here amongst the poorer sort of people, who hold it a matter of conscience to visit their neighbours in any sickness, yea though they know it to be the infection."

epidemic was there any break-down in the work of expeditious burial or any failure in good order and decency. To carry the poor through the great crisis much money was needed; Defoe says that it was forthcoming from all parts of England and he estimates the distribution of relief at thousands of pounds weekly, although he failed to find the exact accounts, which, he thinks, had been destroyed in the fire of 1666. A thousand pounds a week, he says, was given from the king's purse. The whole of this great system of relief was under the direction of the Lord Mayor, Sir John Lawrence, who proved himself worthy of the best traditions of his office. In the out-parishes there were Justices of the Peace who discharged the like duties.

The regular clergy for the most part left the town, but two are honourably mentioned as having stayed with the plague-stricken people, Dr Anthony Walker, of St Mary Aldermanbury, and Mr Meriton[1].

Sometime in August Lord Arlington wrote to the bishop of London that the king was informed of many ministers and lecturers being absent from their posts during this time of contagion, and that nonconformists had thrust themselves into their pulpits to preach seditions and doctrines contrary to the Church. His majesty wishes the bishop to prevent such mischiefs to Church and State[2]. The bishop replied, from Fulham, 19 August, that the sober clergy remain, that he had refused some that offered to supply vacancies, suspecting them to be of the factious party, though they promised to conform, that most of his officers had deserted him and gone into the country, but he could not learn that any nonconformists had invaded the pulpit[3]. The bishop, however, was not likely to hear much within his garden walls at Fulham of what was passing at Aldgate. There can be no question that Church pulpits were occupied during the plague by ministers who had been ejected in 1662. Chief among them was Thomas Vincent, formerly minister of St Magdalen's, Milk Street, who preached in St Botolph's, Aldgate, Great St Helen's, and Allhallows Staining[4]. Vincent says that it was the opportunity of irregular practitioners both in the Church and in medicine,

[1] Evans, in preface to 1721 edition of Vincent's book.
[2] *Cal. State Papers.* [3] *Ibid.* [4] Evans, *l. c.*

and he is disposed to say a good word for the latter from a fellow feeling with them. Besides Vincent, says Richard Baxter[1], there were "some strangers that came thither since they were silenced, as Mr Chester, Mr Janeway, Mr Turner, Mr Grimes, Mr Franklin, and some others." These all became prominent in London Nonconformity; and Baxter clearly traces their subsequent power to the opportunity that the plague gave them:

"But one great benefit the plague brought to the city, that is, it occasioned the silenced ministers more openly and laboriously to preach the Gospel to the exceeding comfort and profit of the people; in so much that to this day [1670] the freedom of preaching which this occasioned, cannot, by the daily guards of soldiers, nor by the imprisonments of multitudes be restrained. The ministers that were silenced for Nonconformity had ever since 1662 done their work privately."

Baxter knew of none among the Nonconformist ministers remaining in London who fell victims to the plague, except "Mr Grunman, a German, a very humble, holy, able minister, but being a silenced Nonconformist, was so poor that he was not able to remove his family." Two others of the sect, who fled, lost their lives—"Mr Cross, flying from the plague into the country died with his wife and some children as soon as he came thither, in the house of that learned worthy man, Mr Shaw, another silenced minister," and Mr Roberts, "a godly Welsh minister, who also flying from the plague, fell sick as far off as between Shrewsbury and Oswestry and died in a little straw, but none durst entertain him." Baxter himself found refuge in the house of the Hampdens, in Bucks[2], leaving his family, as he says,

[1] *Reliquiae Baxterianae.* London, 1696, II. 1. 2.

[2] Milton, with his wife and daughters, spent the summer and autumn in the same quiet neighbourhood, at Chalfont St Giles, in a cottage which Ellwood had secured for him, still remaining with its low ceilings and diamond window-panes. He there showed Ellwood the manuscript of *Paradise Lost*, which was published in 1667. The poem contains no reference to the plague, unless, indeed, the flight to the country had given point to the lines in the 9th book:

> "As one who long in populous city pent,
> Where houses thick and sewers annoy the air,
> Forth issuing on a summer's morn, to breathe
> Among the pleasant villages and farms,"—

An opportunity arises in the 12th book, where the Plagues of Egypt come into the

in the midst of plague at Acton. Defoe draws from the incident of the Nonconformists in Church pulpits a somewhat sentimental moral; he sees nothing aggressive in it, but merely the levelling of differences by affliction, and a short-lived prospect of reconciliation.

The irregular practitioners of physic would appear to have been in great force, just as in former plagues, when their bills were on every post. Defoe professes to give specimens of their advertisements, which he might have adapted from actual advertisements in the news-sheets, the 'Intelligencer' and the 'Newes.' The empirics were of both sexes, and of foreign extraction as well as native.

Among the regular physicians who practised for a time, at least, in the plague were the famous Professor Glisson, Dr Nathan Paget (an intimate friend of Milton and cousin of Elizabeth Minshull whom the poet, in 1664, had married for his third wife), Dr Wharton, of St Thomas's Hospital, a distinguished anatomist, Dr Berwick or Barwick, Dr Brooke, Dr Hodges, and Dr Conyers. The last was one of two of his order who died of the plague. Two Paracelsist or chemical physicians, Dr Dey and Dr Starkey, died of it: and Dr George Thomson says that he survived three several attacks of the buboes, the first sore lasting for four months. A considerable number of chirurgeons and apothecaries are said (by Defoe) to have fallen victims. Pepys says that at the first meeting of Gresham College (the

prophetic vision of events after the Fall; but the movement is too rapid to allow of delay, and we have no more than—

> "Botches and blains must all his flesh emboss,
> And all his people."

Gibbon thought that the comet of 1664 (which was generally remarked upon as a portent of the plague that followed) might have suggested the lines, II. 708—11

> "and like a comet burn'd,
> That fires the length of Ophiuchus huge
> In the arctic sky, and from his horrid hair
> Shakes pestilence and war."

Gibbon seems to make a slip in taking these as "the famous lines which startled the licenser;" those are usually taken to have been I. 598–9, the figure of the sun's eclipse, which

> "with fear of change
> Perplexes monarchs."

Royal Society) since the plague, held on January 22, 1666, Dr Goddard "did fill us with talk in defence of his and his fellow physicians' going out of town in the plague-time," his plea being that their particular patients were out of town, and they left at liberty. But that excuse ignores the fact that the time was a great emergency, and puts the defence upon the wrong ground.

Goddard had attended Cromwell in the Irish and Scottish campaigns as physician to the army. For a short time he had been a member of the Council of State, and for several years was master of a College at Oxford. He was Gresham professor of physic, and one of the original council of the Royal Society. This eminent man of science was the inventor and proprietor of "Goddard's drop," the secret of which he sold to Charles II. for a large sum, said to have been £6000. Dr Martin Lister says that the king showed him the receipt, and that the drops were nothing more than the volatile spirit of raw silk rectified with oil of cinnamon, and no better than ordinary spirit of hartshorn. Another writer says that the drops contained also skull of a person hanged and dried viper. According to Sydenham, Goddard's drops were preferable to other volatile spirits for the particular purpose, namely, the recovery of people from faintings of various kinds. Even if Dr Goddard had remained in town, he would have been a trafficker in nostrums as much as the empirics; nor is it probable, from all that we know, that he could have brought epidemiological principles to bear upon the management of the epidemic among the poor. The best teaching of the time counselled that which he himself practised, namely, flight.

Defoe says that the Lord Mayor (Sir John Lawrence), the Sheriffs (Sir George Waterman and Sir Charles Doe), the Court of Aldermen and certain of the Common Council, or their deputies, came to a resolution and published it, viz.:

> "That they would not quit the City themselves, but that they would be always at hand for the preserving of good order in every place, and for the doing justice on all occasions; as also for the distributing the public charity to the poor; and, in a word, for the doing the duty and discharging the trust reposed in them by the citizens to the utmost of their power."

The minutes are extant of numerous meetings of the Mayor

and Council, with the orders made (on May 11, June 17, 19, and 27, July 12, and at short intervals thereafter)[1]. Two of the Aldermen died of plague.

It appears to be admitted by all, that good order was kept, the dead buried expeditiously, day and night watchmen provided for an immense number of infected houses (until, as Vincent says, the infected houses became so many that there was no use shutting them up), bearers of the dead and grave-diggers engaged to fill the places of those who died, and applications heard for relief. One of the things that justly excited the admiration of Defoe was the abundant supply of all the markets, and the almost unvarying weight of the penny wheaten loaf, which is given every week at the foot of the bill of mortality. The Parish Clerks brought out their bill regularly, although Hodges says that the sextons failed at length to keep an accurate account of the number of corpses. All the dead were buried at first in coffins and with full ceremony; but when the infection became hottest in August and September, especially in the crowded East-end and in Southwark, the bodies are said to have been brought to the pits in cartloads and thrown in, sometimes without even a covering[2]. That is alleged by the writers on the plagues of 1603 and 1625, and the same must have happened to some extent in 1665, but whether to the extent that Defoe's graphic account implies may be doubted.

The burials took place over night until, as Vincent says, "now the nights are too short to bury the dead." This was a reversal of the order, first issued in 1547 and probably carried out in the plague of 1603, that no burial was to take place between six in the evening and six in the morning. Even at

[1] *Brit. Mus. Addit. MS.* 4376 (8). "Abstract of several orders relating to the Plague," from 35 Hen. VIII. to 1665.

[2] In excavating the foundations of the Broad Street terminus of the North London Railway, the workmen came upon a stratum four feet below the surface and descending eight or ten feet lower, which was full of uncoffined skeletons. Some hundreds of them were collected and re-interred. (*Notes and Queries*, 3rd Ser. iv. 85.) The ground was part of the old enclosure of Bethlem Hospital (St Mary's Spital outside Bishopsgate), and was acquired for a cemetery, to the extent of an acre, by Sir Thomas Roe, in 1569. Probably there were plague-pits dug in it during more than one of the great epidemics, from 1593 to 1665.

the worst time, coffins would seem to have been got for most. Vincent says, "Now we could hardly go forth but we should meet many coffins," and he mentions one woman whom he met with a little coffin under her arm. Evelyn enters in his diary on September 7, the worst week of the epidemic: "I went all along the City and suburbs from Kent Street to St James's, a dismal passage and dangerous, to see so many coffins exposed in the streets now thin of people." Defoe's weird description of the Aldgate plague-pit at midnight, with seven or eight lanterns set on the heaps of earth round the edge, and of the constant journeys to and fro of the dead-carts, has probably made the most of the realities of the case.

A letter of Pepys to Lady Carteret, written from Woolwich on September 4, gives us a glimpse of the state of the City:

"I having stayed in the city till about 7400 died in one week, and of them above 6000 of the plague, and little noise heard day nor night but tolling of bells; till I could walk Lumber-Street and not meet twenty persons from one end to the other, and not fifty upon the Exchange; till whole families, 10 and 12 together, have been swept away; till my very physician, Dr Burnet, who undertook to secure me against any infection, having survived the month of his own being shut up, died himself of the plague; till the nights, though much lengthened, are grown too short to conceal the burials of those that died the day before, people being thereby constrained to borrow daylight for that service." The butcheries are everywhere visited, his brewer is shut up, and his baker dead with his whole family.

On September 20, he writes in his diary:

"But Lord! what a sad time it is to all: no boats upon the river, and grass grows all up and down Whitehall Court, and nobody but poor wretches in the streets."

Some three weeks later (October 11) Evelyn writes in his diary: "Went through the whole city, having occasion to alight out of the coach in several places about business of money, when I was environed with multitudes of poor pestiferous creatures begging alms. The shops universally shut up." Vincent says that he would meet "many with sores and limping in the streets," (from the suppurating buboes in the groins). Again:

"It would be endless to speak what we have seen and heard of:—some in their frenzy rising out of their beds and leaping about their rooms; others

crying and roaring at their windows; some coming forth almost naked into the streets"

—the delirium being sometimes of the gentle or foolish kind, and sometimes violent. These incidents are much enlarged upon by Defoe, who makes out the cries and groans (mentioned by Dekker and others for the earlier plagues) to have been from the pain of the hard and tense buboes. Boghurst says that the treatment by actual cautery and other escharotics caused more pain than the buboes.

As a set-off to the more horrible picture given by Defoe of the inmates of a house all dying together, their bodies being found by the watchmen and taken away in the dead-cart, we may turn to Vincent's plain account of what happened in the house where he lodged, probably in the neighbourhood of Aldgate or Bishopsgate, when he came up from Islington to minister to the sick.

"We were eight in the family—three men, three youths, an old woman and a maid; all which came to me, hearing of my stay in town, some to accompany me, others to help me [he was a celebrity in the religious world with a large following]. It was the latter end of September before any of us were touched...But at last we were visited...At first our maid was smitten; it began with a shivering and trembling in her flesh, and quickly seized on her spirits...I came home and the maid was on her death-bed; and another crying out for help, being left alone in a sweating fainting-fit. It was on Monday when the maid was smitten; on Thursday she died full of tokens. On Friday one of the youths had a swelling in his groin, and on the Lord's day died with the marks of the distemper upon him. On the same day another youth did sicken, and on the Wednesday following he died. On the Thursday night his master fell sick of the disease, and within a day or two was full of spots, but strangely recovered...The rest were preserved."

The two boys appear to have been conscious to the end, and to have died in the placid mood that often came on in the last hours of plague, as in other prostrating infections such as yellow fever and cholera. In those two weeks at the end of September and beginning of October the burials in all London were 6460 (of plague 5533) and 5720 (of plague 4929).

The chief preventive measure which the mayor had to give effect to was the shutting-up of infected houses. Defoe says that he carried out that odious policy considerately. The policy

was a traditional one, and may or may not have had its origin in medical prescription. It was practised, as we have seen in a former chapter, early in the reign of Henry VIII., if not even before that. The doctrine underlying it was the contagiousness of plague, which was much more a doctrine of the faculty than of the people, and was most of all a doctrine of the Court. Originally the dogma of contagiousness, in all its rigour, had been made for the persons of the Tudor monarchs, and as late as 1665 it was in the atmosphere of the Court that the contagion of plague was invested with the most powerful properties. The common people of London gave no heed to it, because they saw every hour that it was a matter of indifference; the middle classes held it in a qualified way, knowing that there was less to fear from plague-bodies than from plague-infected ground; but kings took the comprehensive view of it, allowing no exceptions or scientific reservations, and the Court doctors, such as Mead in the 18th century, at length succeeded in making the high doctrine of plague-contagion to pass current. Two instances are known from extant petitions, of its rigorous application upon Court servants in 1665: one in the case of a trumpeter of the king, and the other in the case of the barber to the household. In the latter case, apparently when the Court was at Salisbury in the autumn, a stranger supposed to be visited with the sickness ran into the barber's tent in his absence; whereon the tent and all his goods and instruments of livelihood were burnt, he himself confined, and his servants sent away, according to the orders for the preservation of the Court, "so that he lost his trade and was utterly ruined[1]."

The more discriminating of the profession knew and taught that the seeds of plague could lurk in a bundle of clothes, or of bedding, or in other effects, or in bales of goods, and that they became the more virulent through the fermentation that goes on in these circumstances. The contagion was understood to be *per fomitem* and *per distans*; on the other hand, experience was rather against a contagion from the exhalations of the sick: the immunity of nurses was as striking as it has been in many other contagions. The people were instinctively right in their

[1] *Cal. State Papers*, Domestic, 1665, p. 579.

belief that they mostly caught the plague because the infection was in the air of the place; so long as they were living on a plague-stricken spot, they were exposed to the risk; and if there were any difference in safety between dwelling-houses, and the streets, markets or shops, the preference seemed to lie with the former. The traditional or official doctrine, however, was that the plague-stricken were the sources of contagion, that all who had come near them were suspect, and that the safety of the well depended upon the rigorous shutting-up of the sick and the suspected together. The experience of epidemic after epidemic might have shown that this theoretical reasoning, so attractive to the "thorough" order of mind, was worthless in practice. A great plague pursued its course until the infected houses became too many for shutting up; if many plague-years did not develop epidemics of the first degree, that was in accordance with some epidemiological law, and not because the preventive measures were one year effective and another year ineffective. However, a traditional doctrine will always survive a good deal of adverse experience; and the shutting-up of houses, which had signally failed in 1563, 1593, 1603, 1625 and 1636, was resorted to once more in 1665, and perhaps with more rigour than ever so as to give it a fair chance. Defoe has stated with great fairness the hardships of it, and he follows Hodges and Boghurst in pronouncing it a mistake and a failure. Most of the horrible incidents of the plague came from the shutting-up of houses; those which Defoe introduces in that connexion do not exceed probability. It is hard to say whether the condemnation of shutting-up, which found wide currency during and immediately after the plague of 1665, would have at length made any difference to the traditional doctrine and practice. The occasion did not arise again in London except for a few months in 1666, when the old practice seems to have been enforced. The corresponding doctrine and practice that arose in its place, was quarantine against foreign importation; that rested firstly upon the sophistical assertion of the all-powerful Mead, that plague had been an exotic to England, and secondly upon the doctrine of plague-contagion in its most comprehensive and least discriminating form. But the quarantine law dates really

from the Queen Anne period, and the curious history of its rise, progress, and overthrow belongs to another part of this work.

The other general preventive measure besides the shutting-up of "visited" houses was the burning of fires in the streets, which was also a tradition from Tudor times. The mayor loyally carried out that also; until in the beginning of autumn a concurrence of things made an end of the practice. These adverse influences were first, the heavy showers of rain, which put the fires out; secondly, the differences in medical opinion whether coal-fires or wood-fires were the better, and whether fires were to be recommended at all; and thirdly the popular perception that the fires made no difference to the progress of the epidemic.

In the way of individual protection and treatment, the College of Physicians issued a tract full of directions and prescriptions, which Boghurst says were all old, being taken from De Vigo († 1520). It is not necessarily against methods of practice that they are old; but one cannot fail to observe how closely the medieval teaching about plague, cause and cure together, was followed to the last in England: for two centuries the writers on plague reproduced the chapters and paragraphs almost without change that we find in the treatise of the bishop of Aarhus, which circulated in manuscript in England in the 15th century and was first printed about 1480. The most popular preventive was something "to smell to," not sweet but *aigre.* Hence the use of civet-boxes, pouncet-boxes, and pomanders, which were made to suit all purses. There were also plague-waters, one of which, "the plague-water of Matthias," figures among the prescriptions of the College of Physicians both in a cheap and in an expensive form. The College's prescription "to break the tumour" is as follows:

"Take a great onion, hollow it, put into it a fig, rue cut small, and a dram of Venice treacle; put it close stopt in a wet paper, and roast it in the embers; apply it hot unto the tumour; lay three or four, one after another; let one lie three hours."

The Paracelsist or chemical physician, Thomson, gives a prescription which brings out the mystical tendencies of that

otherwise meritorious sect. It relates to a method of curing plague by means of a toad.

"The great difficulty to bring this animal to a true Zenexton lies in an exquisite preparation of it, the manner whereof that great investigator of verity, Van Helmont, hath thus delivered, as he received instructions from Butler, an Irishman who (to Helmont's knowledge) had cured some thousands of the pest in London. He gave directions that a large Bufo, taken in the afternoon in the month of June, should be hung up by the legs, nigh the fire, over a vessel of yellow wax" etc.

Tobacco, smoked or chewed, came into great vogue in 1665 as a preservative from the plague. Hearne, the antiquary, says:

"I have been told that in the last great plague at London [1665] none that kept tobacconists shops had the plague. It is certain that smoaking it was looked upon as a most excellent preservative; in so much that even children were obliged to smoak. And I remember that I heard formerly Tom Rogers, who was yeoman beadle, say that when he was that year, when the plague raged, a schoolboy at Eaton, all the boys of that school were obliged to smoak in the school every morning, and that he was never whipped so much in his life as he was one morning for not smoaking[1]."

The best medical details of the Great Plague come from Boghurst, who claims that the observations were all his own.

With regard to its incidence he says: "About the beginning most men got it with fuddling, surfeiting, over heating themselves, and disorderly living." Again: "Those that married in the heat of the disease (if they had not had the disease before) almost all fell into it in a week or a fortnight after it, both in the city and in the country, of which most died, especially the men." One of Dekker's stories of the year 1603 is an illustration of the same thing. "It usually went through a whole kindred, though living in several places; which was the cause it swept away many whole families... In some houses ten out of twelve died, and sixteen out of twenty." Melancholy for the loss of friends predisposed to it, while cheerfulness and courage fortified some against it. Old people that had many sores upon them, especially carbuncles, almost all died. The natural constitution, disposition, or complexion "did much to make or mar the disease." People with hollow eyes commonly died. Those who drank brandy and strong waters grew mad, looked about them wildly, and died quickly in two days. "All that I saw that were let blood, if they had been sick two, three, four or five days or more, died the same day." Teeming women fared miserably; they were not more subject than others: but scarce one in forty lived (this is enlarged

[1] *Reliquiae Hearnianae.* Ed. Bliss, 1869, II. 117 (under the date of Jan. 21, 1721).

upon by Defoe). Many people had the spotted fever and the plague both together, and many the French pox and the plague both together, and yet both sorts commonly lived (someone says that men caught the French pox of purpose[1]). All sorts died, but more of the good than the bad, more men than women, more of dull complexion than fair. "Of all the common hackney prostitutes of Luteners-lane, Dog-yard, Cross-lane, Baldwin-gardens, Hatton-garden and other places, the common criers of oranges, oysters, fruits etc., all the impudent drunken drabbing bayles and fellows, and many others of the *rouge route*, there is but few missing—verifying the testimony of Diemerbroeck that the plague left the rotten bodies and took the sound[2]." It fell not very thick upon old people till about the middle or slake of the disease, and most in the decrease and declining of the disease. Cats, dogs, cattle, poultry, etc., were free from infection.

Some died in twelve or twenty days, but most in five or six. In summer about one-half that were sick, died; but towards winter, three of four lived. None died suddenly as stricken by lightning: "I saw none die under twenty or twenty-four hours." After one rising, or bubo, was broke and run, commonly another and another would rise in several parts of the body, so that many had the disease upon them half a year; some risings would not break under half a year, being so deep in the flesh.

This explains Dekker's statement in 1603 that some had buboes repeatedly, and that one person had eighteen sores. Dr Thomson himself had buboes thrice. Hodges, also, knew of many cases fatal at the third seizure, the later attacks being not relapses but new infections; some even fell at the fifth or sixth time, being before well recovered. In one of the earlier London plagues, that of 1563, Jones saw a case of a woman near Temple Bar that ended fatally at the third attack, the buboes having suppurated twice, but not at the third time. Boghurst goes on:

Of evil omen was "a white, soft, sudden, puffed up tumour on the neck behind the ears, in the armpit, or in the flank;" also a "large extended hard tumour under the chin, swelling downwards upon the throat and fetching a

[1] *The City Remembrancer*. London, 1769 (professing to be Gideon Harvey's notes).

[2] Procopius (*De Bello Persico*, II. cap. 23, Latin Translation) says the same of the great Justinian plague in A.D. 543 at Byzantium: "ut vere quis possit dicere, pestem illam, seu casu aliquo seu providentia, quasi delectu diligenter habito, sceleratissimos quosque reliquisse. Sed haec postea clarius patuerunt." On this Gibbon remarks: "Philosophy must disdain the observation of Procopius, that the lives of such men were guarded by the peculiar favour of fortune or Providence;" and most men will agree with Gibbon. But, if we could be sure of the fact of immunity (and Boghurst's testimony is a little weakened by his deference to Diemerbroek, who knew the classical traditions of plague), it might be possible to explain it on merely pathological grounds.

great compass" (the brawny swelling of the submaxillary salivary glands and surrounding tissues). Tokens came out after a violent sweat, which was often induced of purpose by nurses, who said, 'Cochineal is a fine thing to bring out the tokens.' Nurses often killed their patients by giving them cold drinks. Many also were killed by the shutting-up of houses, by wickedness (of nurses?), by confident and ignorant mountebanks, by over-hasty cutting and burning of buboes. Servants and poor people removed to the pest-house or to other houses in their sickness, took harm therefrom. People using corrosives, actual cauteries and many intolerable applications put their patients to more pain than the disease did.

The botches, or buboes (swollen lymph-glands in the neck, armpits or groins), were the most distinctive sign of the plague, having given to it the old name of "the botch." Besides these, there were the "tokens" (specially limited in meaning to livid spots on the skin), carbuncles and blains. Carbuncles, says Boghurst, commonly rose upon the most substantial, gross, firm flesh, as the thighs, legs, backside, buttock; they never occurred, that he saw, on the head among the hair, or on the belly. They were not seen until the end of July, were most rife in September and October, commonly in old people, never in children.

Hodges saw one carbuncle on the thigh, the size of two handbreadths, with a large blister on it, "which being opened by the chirurgeon and scarification made where the mortification did begin, the patient expired under the operation." But most commonly carbuncles did not exceed the breadth of three or four fingers. Boghurst continues:

"Blains are a kind of diminutive carbuncle, but are not so hard, black, and fiery; sometimes there is a little core in them. Generally they are no bigger than a two-penny piece, or a groat at the biggest, with a bladder full of liquor on the top of them, which, if you open but a little, will come out whitish or of a lemon or straw colour." "Besides a blain there is a thing you may call a blister, puffing up the skin, long like one's finger in figure, like a blister raised with cantharides; and such usually die." The following experience is remarkable, but it is doubtful whether Boghurst has not taken it from Diemerbroek: "Towards the latter end of a plague, many people that stayed, and others that returned, have little angry pustules and blains rising upon them, especially upon the hands, without being sick at all. But such never die, nor infect others; and I remember Diemerbroeck saith, etc." Can this be the meaning of "smallpox" following the plague, as in the 16th century books by Alphanus, Kellwaye and others?

The tokens proper, according to Hodges, were spots on the skin "proceeding from extravasated blood." The body of the youth dissected by Thomson was "beset with spots, black and

blue," some of which when opened "contained a coagulated matter." The tokens, as the name implies, were made the most distinctive sign of the plague; but they were far from being so constant as the botches or buboes. Boghurst says that "tokens appeared not much until about the middle of June," and, according to a letter of September 14, they must have been very variable even at the height of the plague: "The practitioners in physic stand amazed to meet with so many various symptoms which they find among their patients; one week the general distempers are blotches and boils, the next week as clear-skinned as may be, but death spares neither; one week full of spots and tokens, and perhaps the succeeding bill none at all[1]."

The account of the dissection by Thomson, of a youth dead of the plague, is perhaps all the morbid anatomy that has come down to us. He found what appear to have been infarcts in the lungs; the surface was "stigmatised with several large ill-favoured marks, much tumified and distended," from which, on section, there issued "sanious, dreggy corruption and a pale ichor destitute of any blood." The stomach contained a black, tenacious matter, like ink. The spleen gave out on section an ichorish matter. The liver was pallid and the kidneys exsanguine. There were "obscure large marks" on the inner surface of the intestines and stomach. The peritoneal cavity contained a "virulent ichor or thin liquor, yellowish, or greenish." There was a decoloured clot in the right ventricle, but "not one spoonful of that ruddy liquor properly called blood could be obtained in this pestilential body." In all other cadavers that he ever dissected he had found that the right ventricle had blackish blood condensed, but this one had a pale clot "like a lamb-stone cut in twain," which puzzled him greatly; perhaps it came, he conjectures, from a sumption of mere crude milk which an indiscreet nurse had given the boy not long before he died.

[1] John Tillison to Dr Sancroft, September 14, 1665. Harl. MSS. cited by Heberden, *Increase and Decrease of Diseases*. London, 1801. Woodall, writing in 1639, and basing on his experience of London plague in 1603, 1625, and 1636, is in like manner emphatic that the symptoms varied much in individuals and in seasons.

Among the symptoms of a fatal issue, Boghurst mentions the following: Hiccough, continual vomiting, sudden looseness, or two or three stools in succession, shortness of breath, stopping of urine, great inward burning and outward cold, continual great thirst, faltering in the voice, speaking in the throat and occasionally sighing, with a slight pulling-in one side of the mouth when they speak, sleeping with the eyes half-open, trembling of the lips and hands and shaking of the head, staggering in going about rooms, unwillingness to speak, hoarseness preventing speech, cramp in the legs, stiffness of one side of the neck, contraction of the jaws, the vomit running out from the side of the mouth, prolonged bleeding at the nose, the sores decreasing and turning black on a sudden.

It is to be remarked that Boghurst says very little of the gentle or the violent delirium, on which Defoe enlarges picturesquely; nor does he emphasize the extreme pain of the hard and tense buboes, which is another of Defoe's themes. Hodges, however, says that "some of the infected run about staggering like drunken men, and fall and expire in the streets; while others lie half-dead and comatous...Some lie vomiting as if they had drunk poison."

The progress of the epidemic would seem to have been little influenced by the weather or by what was done, unless the shutting-up of houses had helped to intensify the virus. Boghurst says: "If very hot weather followed a shower of rain, the disease increased much;" and again: "If, in the heat of the disease the wind blew very sharp and cold, people died very quickly, many lying sick but one day." We are told, however, by Hodges that "the whole summer was refreshed with moderate breezes," and that "the heat was too mild to encourage corruption and fermentation." The air itself, he says, "remained uninfected." Rain fell from time to time in the end of summer, copious enough to put out the fires in the streets. There was at least one very hot day, near the beginning of the epidemic, the 5th of June, which Pepys says was "the hottest day that I ever felt in my life." On September 20, however, he says that the increase of the plague could not have been expected "from the coldness of the late season."

The plague lingered in London throughout the year 1666, causing 1998 deaths in all. In January 1666 it was still at as high a figure as 158 deaths in a week, and in the week ending September 18 it rose again to the exceptional height of 104 deaths. In the first three weeks of December, the deaths were 2, 4, and 3; and from that low level the plague never rose again in London. A few annual deaths continued to appear in the bills down to 1679, when they finally disappeared.

Plague near London in 1665.

Meanwhile various parts of England were affected with plague during and after the great epidemic, and in one or two instances a little before it. In the immediate neighbourhood of the capital all the towns and villages usually implicated by the exodus from the City had cases of plague, as the following table shows. It has been compiled from the parish registers, as extracted in Lysons' *Environs of London,* Defoe's widely discrepant figures being given for comparison in the third column.

	All causes	Plague	Defoe's list.
Barking	230		200
Barnes	27		
Barnet and Hadley			43
Battersea	113		
Beckenham	18		
Brentford	103		432
Brentwood			70
Bromley	27	7	
Camberwell	133		
Charlton	7	3	
Chertsey			18
Chiselhurst	21		
Clapham	28		
Croydon		141	61
Deptford	548	374	623
Ealing	286	244	
Edmonton			19
Eltham	44	32	85
Enfield	176		32
Epping			26
Finchley	38		
Greenwich	416		231
Hampstead	214		
Heston	48	13	
Hodsdon			30
Hertford			90
Hornsey	53	43	85
Isleworth	195	149	
Kensington	62	25	
Kingston			122
Lewisham	56		
Mortlake	197	170	
Newington, Stoke			17
Norwood	12	2	
Putney		74	
Romford	90		109
St Albans			121
Stratford-Bow	139		
Staines			82
Tottenham	no entries		42
Twickenham		21	
Uxbridge			117
Waltham Abbey			23
Walthamstow	68		
Wandsworth		245	
Ware			160
Watford			45
Windsor			103
Woodford	33		

The most striking fact that comes out is that most of the parishes around London had actually fewer deaths from plague in 1665 than in 1603. The exceptions to this rule in 1665 are the villages on or near the Thames above London—Battersea, Wandsworth, Putney, Mortlake, Brentford, Isleworth, and Ealing, which had all a very high mortality, Barnes being almost exempt. On the lower reaches of the Thames, Barking on the Essex shore, and Deptford, Greenwich and Lewisham on the other side, had the infection in them very severely; but these three places in Kent had a still more severe visitation in 1666, along with other towns in that county.

On September 9, Evelyn wrote from his Deptford house, Sayes Court, that "near thirty houses are visited in this miserable village." The infection got also among the ships of the navy; on August 29, on board the 'Loyal Subject' at Deal, Captain Fortescue and six men died suddenly, it was feared of the plague.

Plague in the Provinces in 1665-6.

The earliest accounts of plague in the provinces come from Yarmouth in November, 1664. On the 18th it is said to have been brought in a vessel from Rotterdam; three died in one house, of whom one had the plague. On November 30, the plague was spreading, if the searchers (drunken women, however) were to be credited. On February 8, 1665, there was another death from plague, and as the summer wore on the mortality increased rapidly. On June 16, thirty had died in the week, the inhabitants had fled, the town was like a country village, and the poor left behind were lamenting at once the lack of work and of charity. On August 21, the king wrote from Salisbury to the bailiffs of Yarmouth concerning the plague. In the weeks ending August 30 and September 6, there were 117 deaths (96 from plague) and 110 deaths (100 from plague), and as late as November 6, there had been 22 plague-deaths in the week. In March, 1666, the epidemic came to an end[1]. Smaller outbreaks occurred in the autumn of 1665 and spring of

[1] *Cal. State Papers. Hist. MSS. Com.* IX. 321.

1666 at Lynn, Norwich, Ipswich and Harwich. The great epidemic at Colchester began in summer, 1665, but fell mostly in 1666, at a time when there was little plague elsewhere, so that it practically closes the history of plague in England, and will come naturally at the end of the chapter.

Most of the provincial outbreaks in 1665 were of small extent, and were probably due to introduction of the virus from London. The valley of the Tyne, which had often experienced severe plagues, had a slight epidemic, said to have originated from the colliers returned from the Thames. On July 18, there were seven houses shut up at Sunderland, one at Wearmouth and one at Durham[1]. A paragraph in the 'Newes,' from Durham, October 13, says that the sickness in the north is now much assuaged. Newcastle remained almost free (although Defoe says different), two houses being shut up on January 30, 1666, and two at Gateshead. The whole north-west and west of England, which had suffered most during the last plague-period, in the Civil Wars, appears to have escaped altogether.

In the south, there was a good deal of the infection at Southampton in the summer and autumn of 1665; on July 6, "the poor will not suffer the rich to quit the town and leave them to starve[2]." It is heard of, also, at Poole and Sherborne in Dorset (in November), at Salisbury, where the Court lay for some weeks, and at Battle[3] in Sussex; but in none of these places to any great extent. Various places in Kent had cases in 1665 —Rochester, Chatham, Sandwich, Eastry, Westwell, Deal, Dover and Canterbury[4]; but it was only the naval stations that had more than a few cases in 1665; while all of them had it far worse in 1666. Other centres in 1665 were in Northamptonshire and Cambridgeshire.

At Peterborough, Oundle and Newport Pagnell, there was a visitation of the severer kind, with flight of the richer inhabitants, and the usual arrest of work and trade. The parish register of Yardley, Hastings, records that 60 persons died of plague in that

[1] *Cal. State Papers. Cal. Le Fleming MSS.* p. 37 (also for Cockermouth).

[2] *Ibid.*

[3] Mead seems to have known that there were plague-cases at Battle in 1665.

[4] *Cal. S. P.*

town from June 5, 1665, to January 3, 1666. There was also a sharp epidemic in Cambridge and in the country around, of which we get a glimpse in a letter of October 19, 1665, written from Clare Hall to one of the fellows of Clare[1]:

"Alderman Mynell the brewer and one of his children died of the plague this last Monday; he hath had four children in all dead of it. Clayton, the barber in Petty Cury, and one of his children, died last Saturday of the sickness. It is newly broken out sadly by Christ's (though they are all fled from the Colledge upon Mr Bunchly, their manciple, dying of the plague)—where Nicholson the smith, his wife and two children are dead within three days, his other children being deadly sick in the house. But it most rageth in St Clement's parish, where seldom a day passeth without one dead of the sickness...Poor Mr Brown, the old man that is one of the University musicians, and Mr Saunders that sings the deep bass, are shut up in Mr Saunders' house in Green Street, whose child died last week suspected. Two houses at Barton are infected by two of Alderman Mynell's children, that are dead there. Ditton is broke out just by the butcher, from whom we had our meat, which made us hastily remove to Grantchester. H. Glenton, the carrier, fled from this town to Shelford, where he died within two or three days, suspected...Royston is sadly in two or three places, the last of which is just in the middle of the town. The infection, they say, was brought thither by a Cambridge man, whom they caught, and shut him up; but he hath since made his escape."

The Epidemic of Plague at Eyam, 1665–6.

Another of the English towns visited by plague in 1665 was Derby; whether the cases were many or few, they caused great alarm, the town being forsaken, the streets grass-grown, and the market set up on a new stance, to which the farmers and traders came primed with a plug of tobacco in their mouths as a preservative. But the epidemic in Derby itself was totally eclipsed in interest by an extraordinary outbreak of plague in the small village of Eyam, at the opposite end of the county, in the North Peak, some twelve miles to the west of Sheffield. The plague of Eyam is, indeed, the most famous of all English plagues; the story of it has been told many times in prose and verse, its traditional incidents being well suited to minor poets and moral writers, and the whole action of the drama con-

[1] *Hist. MSS. Com.* II. 115.

veniently centered within a circuit of half a mile in a cup of the heathy hills[1].

Eyam was a village of some three hundred and fifty inhabitants, standing among meadows around which the hills towered. It had no resident doctor, but it had two ministers. The one was the rector, the Rev. William Mompesson, a young man of twenty-seven, with a wife and two children, who had been settled in Eyam only a year and did not like it; the other was the former rector, the Rev. Thomas Stanley, who had been ejected for nonconformity in 1662, and had remained to carry on his ministrations as a Dissenter among such of his old flock as adhered to him. The wealthier householders resided at the western and higher end of the village, on the other side of a brook which crossed under the road; as we shall see, they escaped the infection almost if not altogether. The annual village wake had been held in August, 1665, with more than the usual concourse of people from villages near. On the 2nd or 3rd September a box arrived from London to the village tailor, who lived in a small house at the western end of the churchyard; it contained old clothes which someone in London is supposed to have bought for him cheap, and some tailors' patterns of cloth. This box is assumed to have been opened by one George Vicars, a servant, who was certainly the first victim of plague. He found the contents to be damp and hung them up at the fire to dry. He was quickly seized with violent sickness, became delirious, developed buboes in his neck and groin, a plague-token on his breast the third day, and died in a wretched state on September 6. His body, which is said to have become soon putrid, was buried in the churchyard on the 7th. Nearly a fortnight passed before another case occurred, that of a youth supposed to have been the tailor's son, who was buried on the 22nd September. Before the 30th four more had died, and in

[1] *The History and Antiquities of Eyam, with a full and particular account of the Great Plague which desolated that village* A.D. 1666. By William Wood, London, 1842. This small volume, which owes its interest solely to the plague-incident, has gone through at least five editions. Among those who have written, in prose or verse, upon the same theme, Wood mentions Dr Mead, Miss Seward, Allan Cunningham, E. Rhodes, S. T. Hall, William and Mary Howitt, S. Roberts, and J. Holland. The story is also in the *Book of Golden Deeds*.

noted for his herculean strength, and laid in shallow graves in the meadows or on the hill-sides. In July the deaths mounted up to five or six on some days, and the total for the month to fifty-seven. In August the dead numbered seventy-eight, among them the rector's wife on the 25th, after a walk with her husband through the meadows, during which she is said to have made the ominous remark that the air smelled sweet[1]. September added twenty-four to the total, and there were now only about forty-five left alive in the place. Of these, fifteen died to the 11th October, when the mortality ceased. Some of the survivors had passed through an attack of the plague, among them the rector's man, whose buboes suppurated. Mompesson himself, who had an issue open in his leg all the time, escaped the infection, as well as his maid-servant. A young woman of Eyam, married in the village of Corbor, two miles off, came one day to see her mother, whom she found sick of the plague; on her return home she took the sickness and died, but no one else in Corbor had it. A man was also at large in the neighbourhood suspected of plague, to whom the earl of Devonshire sent a doctor. The doctor and patient met by appointment on the opposite banks of a stream, and the diagnosis made across the water acquitted the man of plague; even in these unconventional circumstances the consultation did not end without a prescription (still extant) for a bottle of "stuff." Seventy-six households in Eyam were infected, and out of these two hundred and fifty-nine persons were buried of the plague. During the time that the infection lasted eight more died from other causes. When the sickness had ceased Mompesson set about burning the infected articles in the empty cottages. Three years after, in 1669, he was presented to the better living of Eakring, in Notts; but on arriving to enter on his duties he was refused admission by the villagers, and had to take up his residence in a temporary hut in Rufford Park, until such time as the preju-

[1] Bacon (*Sylva Sylvarum*, Cent. x. § 912. Spedding II. 643) says: "The plague is many times taken without a manifest sense, as hath been said. And they report that, where it is found, it hath a scent of the smell of a mellow apple; and (as some say) of May-flowers; and it is also received that smells of flowers that are mellow and luscious are ill for the plague: as white lilies, cowslips and hyacinths."

dices of his new parishioners had been overcome. He married another wife, and for thirty-nine years held the living of Eakring, where he died on March 7, 1708. Stanley, his Dissenting colleague at Eyam, died there a few years after the plague.

Several things combined to magnify the disaster at Eyam. The story of the box of clothes from London is entirely credible, and can be matched by many other instances in the history of plague and of cholera[1]. Nothing intensifies the virus of such diseases so much as fermentation without air in the textures of clothes or linen; a whiff from the opened box or bundle suffices soon to prostrate the person who breathes it. The poison at Eyam was a powerful one from the first, and it is credible that the body of the earliest victim did become quickly putrid. The heavy mortality, with few recoveries, which followed after a fortnight's interval, and continued all through the winter, also shows a virus raised to no ordinary potency. But, for the revival of the infection in June, 1666, we must seek other causes. Eyam was one of those basins which, on a large scale or on a small, have often been observed to keep infection in their soil. The virus must have passed into the pores of the ground after the first sixty or more burials in the churchyard down to the lull of the epidemic in winter; with the rise of the ground-water in spring, it would be comparatively inactive; but in June, when the water was again sinking in the soil and the great heat was raising emanations from the dry ground, it broke forth with an intensity which poisoned the whole air of the valley. The burials, after the end of June, without coffins and in shallow graves in the meadows or on the hill-side, were so much ferment added to a soil already permeated by it. Flight from such a place was the only safety, and the rector, with the best motives, counselled the people to remain. Mompesson's conduct has always been held up as a pattern of heroism, as if the circumstances had been desperate like those of the Trojans when the Greeks were in their streets and houses:

Una salus victis nullam sperare salutem.

[1] Sir Thomas Elyot, in *The Castle of Health* (1541), says that "infected stuff lying in a coffer fast shut for two years, then opened, has infected those that stood nigh it, who soon after died." (Cited by Brasbridge, *Poor Man's Jewel*, 1578, Chapter VIII.)

No word of detraction should be spoken of anyone who does manfully what he conceives to be his duty to his neighbours; but the villagers of Eyam were sacrificed, all the same, to an idea, and to an idea which we may now say was not scientifically sound. When the impulse came upon them to flee, they might have left their tainted soil without much risk to the country around so long as they did not collect in one spot or carry with them bedding or the like susceptible articles: those who did flee from the houses at the upper end of the village are not known to have carried the infection to other places, and the young woman who brought it to Corbor gave it to no one else. But the wisdom of flight may be regarded by some as still disputable; while it will be admitted by all that Mompesson acted for the best according to his lights.

The plague in 1666 raged severely in a number of towns, while it lingered on in London. The information from Winchester is vague; it is said that the dead were carried out in carts and buried on the downs to the eastward[1]; the epidemic was over by the 1st of December, so that the College resumed[2]. Pepys enters in his Diary (April 4, 1667): "One at the table [the duke of Albemarle's] told an odd passage in the late plague, that at Petersfield (I think he said), one side of the street had every house almost infected through the town, and the other not one shut up." There may have been other such centres of plague, and equally interesting observations made on them; but it appears to be the merest chance whether anything is recorded of them at all, or whether one has the luck to come across the record.

The great centres of plague in 1666 had some connexion with the fleet, and were mostly in Kent and Essex. Deptford and Greenwich had more plague that year than the year before, the total deaths at the former having been 715 (of plague 522) and at the latter 423. Eltham and Lewisham were also visited

[1] Milner's *Hist. of Winchester.*

[2] *The City Remembrancer*, Lond. 1769, vol. I.—an account of the plague, fire, storm of 1703, etc., said to have been "collected from curious and authentic papers originally compiled by the late learned Dr [Gideon] Harvey." But the section on the plague is almost purely Defoe and Vincent, with a few things from Mead.

in proportion. The other intense centre of infection in Kent was Deal. On the 26th August, seven died of the plague, and twenty in the whole week. At that date there were said to be only 16 houses which had not had plague in them. On December 9, all the houses were clear, although the crews of ships still avoided the town. Next to Deal, Sandwich, Dover, Canterbury and Maidstone had considerable outbreaks in the autumn. At Portsmouth also there was a sharp outbreak in the summer of 1666, twenty-one having died of plague in a week at the beginning of July.

In the Eastern Counties, plague revived to a considerable extent in 1666 at Norwich, Ipswich, Harwich and Woodbridge, the Yarmouth outbreak, which had been the great one in that quarter the year before, having come to an end in the spring. But it was at Colchester that the epidemic engrossed attention in 1666. Colchester had, indeed, two successive seasons of plague, or rather a continuous prevalence of it from the summer of 1665 to December, 1666. The plague at Colchester in 1665–66 was the greatest of all provincial plagues since the Black Death, unless, indeed, we credit the numbers (11,000 or 12,000) given for a plague at York in 1390. It reproduced the mortality of the Great Plague of London on a scale more than proportionate to its size, and it doubtless called forth the same class of incidents—flight of the wealthier classes, and almost total extermination of the poor. No documents remain, however, of this plague except the oaths administered to searchers and bearers of the dead (printed below) and the weekly totals of deaths from plague and from other causes[1]. The weekly

[1] These figures, with the two oaths, had been copied by the antiquary Morant for his *History of Essex*, and are preserved in No. 87. ff. 55 and 56, of the Stowe MSS. in the British Museum, where Mr J. A. Herbert, of the Manuscript Department, pointed them out to me. In his printed *History* Morant has summarized the plague-deaths in monthly periods.

The Bearers' Oath, fol. 57 :—

"Ye shall swear, that ye shall bear to the ground and bury the bodys of all such persons as, during these infectious times, shall dye of the pestilence within this Towne or the Liberties thereof, or so many of them as ye shall have notice of, and may be permitted to bury, carrying them to burials always in the night time, unless it be otherwise ordered by the Mayor of this Towne ; And ye shall be always in readiness for that purpose at your abode, where you shall be appointed, keeping apart from

bills are, indeed, as eloquent a testimony as any detailed description could have been; and as they are the most complete of the kind for a provincial town, I have transcribed them from the manuscript record in full. The small number of deaths from ordinary causes points to the emptiness of the better quarters of the town; the total deaths in seventeen months, 5345, including 4817 plague-deaths and 528 from other causes, must have meant an enormous clearance of the poorer classes. Colchester was then a place of considerable wealth, with a thriving Dutch trade and a considerable Dutch colony. Perhaps the connexion with Holland, where plague had been rife in the years just before, may explain the origin of the outbreak; but local conditions of soil, overcrowding, and the

your families together with the searchers, and not to be absent from thence more than your office of Bearers requires. Ye shall always in your walk, as much as may be, avoid the society of people, keeping as far distant from them as may bee, and carrying openly in your hands a white wand, by which people may know you, and shun and avoid you. And shall do all other things belonging to the office of Bearers, and therein shall demean yourselves honestly and faithfully, discharging a good conscience; So etc.

August 1665. JAMES BARTON and
JOHN COOKE:—sworn, who are to have for their pains 10 sh. a week a piece; and 2d for every one to be buried, taking the 2d out of the estate of the deceased. If there be not wherewithal, the parish to bear it.

Oath 6. p. 44.

The Oath for the Searchers of the Plague, 1665.

"Yee and either of You shall sweare, that ye shall diligently view and search the corps of all such persons, as during these infectious times, shall dye within this Towne or the Liberties thereof, or so many of them as you shall or may have access unto, or have notice of; And shall according to the best of your skill, determine of what disease every such dead corps came to its death. And shall immediately give your judgment thereof to the Constables of the parish where such corps shall be found, and to the Bearers appointed for the burial of such infected corps. You shall not make report of the cause of any one's death better or worse than the nature of the disease shall deserve. Yee shall live together where you shall be appointed, and not walk abroad more than necessity requires, and that only in the execution of your office of Searchers. Ye shall decline and absent yourselves from your families, and always avoid the society of people. And in your walk shall keep as far distant from men as may be, always carrying in your hands a white wand, by which the people may know you, and shun and avoid you. And ye shall well and truly do all other things belonging to the office of Searchers, according to the best of your skill, wisdom, knowledge, and power, in all things dealing faithfully, honestly, unfeignedly and impartially. So help" etc.

like must be looked to for the cause of its extraordinary persistence and fatality.

Weekly mortalities in Colchester, August 14, 1665, *to December* 14, 1666, *from plague and other diseases.*

1665 Week ending	Plague	Other
Aug. 21	26	2
28	62	2
Sept. 8	122	4
15	153	22
22	159	25
29	100	25
Oct. 6	161	27
13	122	23
20	106	15
27	60	41
Nov. 3	104	13
10	88	22
17	88	18
24	62	8
Dec. 1	38	10
8	39	6
15	67	4
22	53	7
29	21	3
1666		
Jan. 5	23	6
12	46	8
19	36	13
26	26	10
Feb. 2	34	9
9	25	3
16	23	7
23	33	6
Mar. 2	53	2
9	26	11
16	37	5
23	48	4
30	66	1
Apr. 6	73	2
13	90	2
20	68	4

1666 Week ending	Plague	Other
Apr. 27	90	4
May 4	169	8
11	167	7
18	150	11
25	98	12
June 1	89	10
8	110	10
15	139	3
22	195	6
29	176	4
July 6	167	8
13	160	9
20	175	3
27	109	4
Aug. 3	109	2
10	85	4
17	70	1
24	51	1
31	53	4
Sept. 7	31	6
14	22	2
21	16	2
28	10	2
Oct. 5	7	2
12	7	0
19	7	2
26	4	2
Nov. 2	4	2
9	4	2
16	2	6
23	1	4
30	1	8
Dec. 7	1	7
14	0	0
	4817	528

To relieve the poverty caused by this great disaster a tax was levied on various other parts of the county of Essex, and contributions were made by private individuals, the London churches collecting £1311. 10*s.* in the breathing-time between

the plague and the fire. Colchester had so far recovered in the end of 1666 as to be able to contribute in turn about a hundred pounds for the relief of London after the fire[1].

The Last of Plague in England.

The history of plague in England must be made to end with a solitary epidemic at Nottingham in 1667, but not without some misgivings as to the correctness of the date. Dr Deering, the historian of the town in 1751, paid little heed to epidemics, although medicine was his business; but he mentions one of smallpox in 1736, which had probably come within his own experience, and proceeds:

"I question much whether there has been the like since the plague which visited the town in 1667, and made a cruel desolation in the higher part of Nottingham, for very few died in the lower; especially in a street called Narrow Marsh, it was observed that the infection had no power, and that during the whole time the plague raged, not one who lived in that street died of it, which induced many of the richer sort of people to crowd thither and hire lodgings at any price; the preservation of the people was attributed to the effluvia of the tanners' ouze (for there were then 47 tanners' yards in that place), besides which they caused a smoak to be made by burning moist tanners' knobs[2]."

If there had been any reference to the parish registers or to the corporation minutes, we should have had no reason to doubt that this epidemic had been correctly assigned to 1667. The last Winchester epidemic had been given under the year 1668, first by one local historian, and then by another who copied him; but when a third went to the manuscript records, he found that the year was 1666, as indeed an incidental reference to the re-opening of Winchester School on 1st December, 1666, "the sickness being in all appearance extinguished," might have warranted one in concluding. It is a singular experience to have brought the history of plague down through several centuries, not without particulars of times and numbers,

[1] Morant, *Hist. of Essex*, I. 74.

[2] Deering, *Nottingham*, vetus et nova, 1751, pp. 82—83. Copied in Thoresby's edition of Thoroton's *History of Nottingham*, II. 60.

and to be obliged to end it in the latter half of the 17th century with an unauthenticated date. The Nottingham epidemic may have been an exception to the generality that all England was finally delivered from the plague in 1666; it is due, at least, to the local historian, in the absence of evidence against, to record his date of 1667. The difficulty of confirming so simple a fact at so late a period may dispose the readers of this work to be tolerant of any lack of certainty and precision that they may discover in its history of more remote times.

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